Education News

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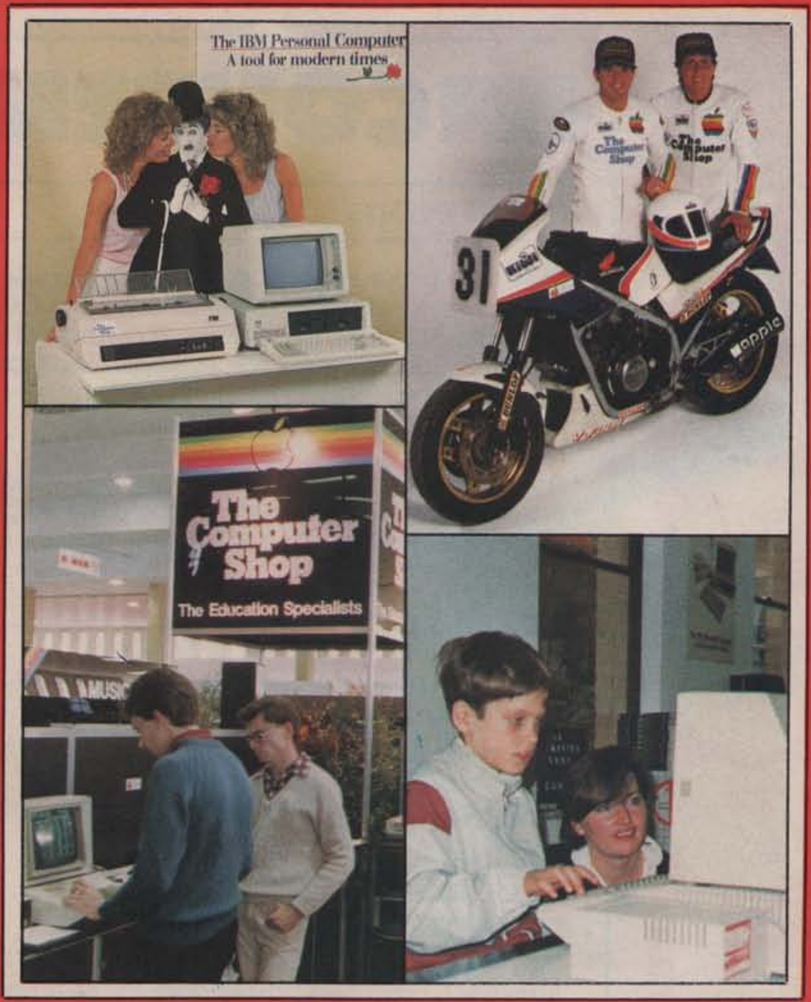

The Computer Shop

'THE EDUCATION SPECIALISTS'

INSIDE: SUMMER COMPUTER CLASSES

WELCOME TO EDUCATION NEWS (Preview Issue)

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WELCOME
WELCOME

Editorial

We'd like to welcome teachers, parents and students to our Preview Issue of "Education News".

The first issue of "Education News" is not to be released until February 1984. Now that the NSW Education Government Contract for Computers has been announced we have so many things to talk about, we quickly organised the printing of this special Preview Issue.

Firstly we must congratulate Apple on their fourth consecutive year on the NSW Education Contract. Newcomers on the two-year contract to the Apple and Micro-Bee are the IBM PC, the BBC Micro and the Atari 800.

It's for the teacher who's just been told to "find out something about computers so we can decide what to buy", that we have written "Education News".

It contains reviews on the latest and most talked about education hardware and software products available through The Computer Shop including: Apple, BBC, IBM PC (possibly Atari), Networking, Hard-disks, Modems, Printers, Commercial and Public-Domain Educational Programs, Software Education Workshops and Computer Training Courses for Teachers.

More importantly, it provides suggestions on where to go for further help: user's groups, computer education groups, software, books, magazines etc.

The children we are educating now are going to live in a far more technically advanced society than ours. It is our job, the teachers, the parents and commercial organisations to prepare our children to the best of our ability. The Government cannot do it alone. We have to be prepared to be flexible, spend a lot of extra time and involve as many other teachers and parents as possible. The thing is to get started, to unleash the power and enthusiasm of the students. One computer is enough to get you going. Tell us how we can help.

We are delighted to announce the opening of our Brisbane Store and look forward to closer ties between New South Wales and Queensland Schools, through "Education News".

Our Richmond store on the outskirts of Sydney, managed by Heather Bullot is going from strength to strength and our Sydney store and Head Office in Annandale is continually running out of space. We have now moved our Computer Classroom to the building next door.

We hope you find a few minutes to look through this special Preview Issue of "Education News" and let us know what you think, so that your ideas, suggestions and experiences may be shared when we begin regular publication of "Education News" in February.

If you have evaluated an education software package or have a program to contribute to the TCS-Software-Library or wish to market your program(s), send them in for evaluation.

Join us now for 1984. It promises to be a very exciting year for all of us involved with computers in education.

Yours sincerely,

Hinke Haisma
Editor.

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RECENT EVENTS

The last few months have been extraordinarily hectic for The Computer Shop. The opening of our Richmond store as well as our office in Brisbane has meant the introduction of many new staff members, many of whom will be familiar to you including: Dick Thew, Barry Campbell and Janet Stenning, all from Electronic Concepts.

NSW computer education group and annual conference

The Computer Shop played an active role in the NSW Computer Education Group's Annual Conference held early in August at the Hydro Majestic Hotel in the Blue Mountains.

A three ton truck was required to ship The Computer's Shop's Apple gear which included 12 systems for the delegates' workshops. Another six systems were used to demonstrate a new classroom network, music system and graphics system with a plotter.

The enthusiasm and anxiety to come to grips with the technology in the schools was demonstrated by the 300-400 teachers who attended this three day conference, which was opened by the Minister for Education, Mr Ron Muloch MP.

The Computer Shop's team certainly put in a great effort at the close of the conference on Sunday. They had to start very early at Medlow Bath packing numerous computers only to have to unpack them again later in the day at the Royal Sydney Showground to set up for the Educare '83 Exhibition.

Educare '83

International education exhibition and forum

This year's Educare Exhibition was Australia's only international educational showplace. Known as the 9th Australasian Education Exhibition, it brought to our attention the major issues of education and training, both current and future.

Held this year in Sydney, from August 8-11, it brought together national and international manufacturers, as well as leading political professional people involved with education. Included was a contingent of 10 British companies, ranging from computer manufacturers to pottery kiln makers.

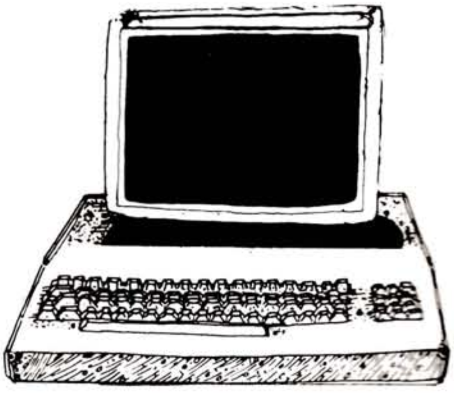
Educare '83 provided a focal point and meeting place for Australia's educational decision makers and presented the latest teaching equipment available worldwide.

The need to educate ourselves is becoming increasingly essential and the methods of doing so are changing at an even greater pace. Educare then provided a unique opportunity to come to terms with the latest technological advances and to evaluate how best they can be used.

The Computer Shop presented both the IBM PC and the Apple Computer range. Many innovations, including the star of the First Australian Personal Computer Exhibition, Apple's Lisa, were on display. Other Apple exhibits that visitors had the opportunity to use were:

- Education System
- Music System
- LOGO System
- Graphics System
- Admin/Business System
- Networking/Communications System

All systems were attended by fully trained Computer Shop personnel and the exhibit, which was not only visited by teachers and students but also many people interested and involved in computers, was a great success.



COMPUTERS IN PRIMARY SCHOOLS

ANNUAL CONFERENCE

Another annual conference, organised by the NSW Computer Education Group, was held at Macquarie University on Saturday, September 17. The Computer Shop was there as usual with 10 Apple Systems for their workshop's use.

> *Unfortunately some teachers think that as long as a computer costs less than $1000 it's OK*

Sandra Wills gave a most enlightening and constructive presentation. She opened by saying "hardware without software is junk'.

Unfortunately some primary school teachers seem to think that "as long as a computer costs less than $1000 it's OK". Sandra pointed out that unless the school could afford to buy a computer that was flexible enough to be able to be used for remedial, drill and practice, and as an extension to the blackboard, then it was far better to put the money back in the bank, and wait until the school could afford a computer with high quality education software, or languages such as PILOT and LOGO.

LOGO makes it very easy for children to experiment, to be creative and to be in control of the computer, rather than the computer controlling them. Using LOGO children learn special awareness, mathematics, geometrics, drawing and what a computer can and cannot do. Teachers must direct and organise this learning. Computer's can't replace teachers, they can only make them more effective.

Sandra will soon be announcing Antarctic Data Base, a new program in the First Fleet Data Base range. The database programs illustrate how computers can be used effectively to teach history. In the same way, primary school children can use the computer as a tool to help with their writing. An easy-to-use word processor allows them to concentrate on what they are saying rather than decifer their scrawl or bad hand writing. What kids have to say is more important in the long run, rather than worrying about their handwriting.

THE 1983 CASTROL 6-HOUR RACE

By far our most exciting event has been our joint sponsorship with Apple Australia of the world's most prestigious production motorcycling event "The 1983 Castrol 6 Hour Race". The ABC's live coverage of the event on Sunday, October 16 was very colourful for both motor cycle and Apple fans alike with riders Graeme Crosby and Mike Cole dressed in their Apple leathers.

The pit crew, also dressed in Apple colours, included David Strong, Managing Director Apple Australia, and Lindsay Walker, Director of The Computer Shop who organised the sponsorship. Our number one rider was Graeme Crosby, who was runner-up in last year's World Championship.

Roger Heyes another well known rider in the event and a winner of two previous Castral 6 Hour races, is now working as part of The Computer Shop's team, selling Apple Computers to motor cycle shops, of course Roger is a very experienced marketing man, and has put together, in conjunction with Western Underwriters Insurance Co an excellent spare parts and stock control package.

10th ACC

The "big one", the 10th Australian Computer Conference and School Symposiun held in Melbourne, saw 35,000 visitors pass through the Royal Exhibition Building. It was the most expensive computer show staged in Australia to date with some $3000 million worth of computing equipment.

According to visitors the exhibition was as good or better than anything seen overseas. A student orchestra and pipe band provided soul-stirring music for the occasion. There was a strong presence of personal computers with Apple and IBM defending their winning game with new challenges from DG and HP.

A look into the future

The SR 100 voices recognition system and the new **portable computers** attracted scores of visitors. A new portable released was the Australian manufactured Dulmison's Magnum, with a price tag of $1955, which is about half the cost of a Gavilan. With its 256K battery backed RAM it's expected to do well.

A mighty Japanese entry was the PC-5000 portable from Sharp. This 11 pound portable unit operates on a rechargeable battery and uses a 16 bit 8088pmp with 128K of memory expandable to 256K. In addition, fascinating little 128K bubble memory cartridges are avaialble for off-line mass storage and applications software. As with the Magnum, the LCD display panel folds flat against the PC-5000 for carrying. In use it displays eight lines of 80 characters with bit mapped graphics capability.

Although most fascinating and an outstanding example of "leading edge" engineering, personally I cannot see a volume market for the portable computers in Australia at the present time.

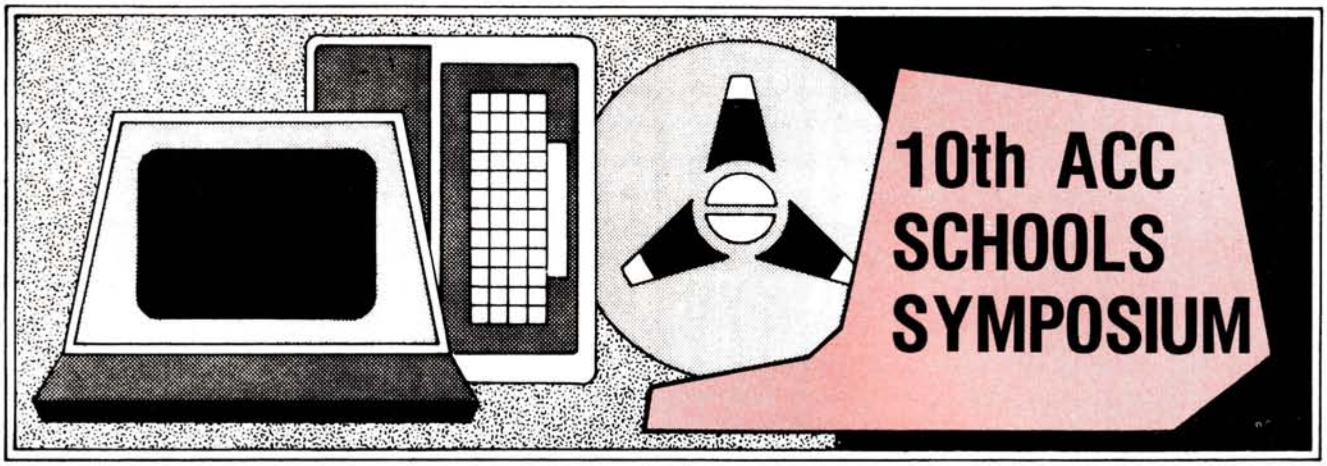
The 10 ACC was much more than just a trade show. It was after all the Australian Computer Society's 10th Annual Conference, with conference sessions to satisfy practically every taste and interest. Sessions on personal computers reinforced the fact that micros have a place in every school, on practicallye every businessman's desk, as well as in most homes. Many parents and teachers are being out-paced by their computer literate children and students. Give most of today's students a choice and they will choose a computer rather than a car.

Professor Tom Stonier from the UK advises the whole family to use and learn from a home computer, otherwise he predicts there will be an ever increasing gap between those who acquire computer skills and those who don't. A computer at home will become as common and necessary as the telephone, according to a spokesman from Apple Computer.

Alvin Toffler in his latest book "Previews and Premises", predicts that in another decade, millions of office workers will be working from their home, using a word processor and a facsimile machine to receive reproductions of letters, and only going to the office for meetings and seminars. Toffler sees higher education and retraining as vital to survival in a highly technological age.

The Prime Minister, Mr Hawke who opened the 10th ACC Conference also spoke of education, retraining and employment programs which are relevant to the sort of changes that are taking place in society today. Where mass manufacturers, such as automobile, steel, rubber and textile industries are in terminal agony there is an explosive rise in electronics, computers, information, genetics, aerospace and alternative energy industries.

According to Toffler, "What is happening is not a recession as such, but a restructuring of entire techno-economic base of society."



10th ACC SCHOOLS SYMPOSIUM

The Schools Symposium was held on the Thursday and Friday of the 10th Australian Computer Conference week in Melbourne, and speakers included:

- Professor Tom Stonier who holds the founding chair in Science and Society at Bradford University in the UK.
- Mr D.A.W. Clarke who spoke on languages and data base.
- Mr Harry Hristendahl's subject on "Computer Graphics – The Picture Tells The Story", rated highly by students.
- Mr Bill Mansfield examined "Social Issues".
- Mr David Rowe from the Chisholm Institute looked at "Hardware Trends".
- Mr Keith Barnes was the final speaker on communication including data transmission and satellites.

Mr Pat Davenport, organiser of the School Symposium, said most of the 400 to 500 of the State's top student computer buffs who attended the conference found the unrelieved and high-powered lectures probably too demanding. However their visit to the exhibition, which gave them access to the biggest, most technologically advanced computer equipment ever seen in this country, and the careers and education forum, made their two days very memorable indeed.

The students in particular enjoyed Mr Hristendahl's talk, who drew a picture of the future where developments are likely to focus on the spoken input. The same rigorous syntax would be necessary, he said, as for typed commands.

Professor Stonier who for many years has been concerned with the interactions between science, technology and society, addressed the issues involved in future education in a society where most physical work would be done by robots and the principal objective of education might not be training for employment.

"Will new objectives emerge – a new education order?" he asked.

"How about education for life?

"Education for self-development" or simply "education for pleasure?

"If the education system is properly structured it is the student who perceives the need for information and searches for it.

"Such a system will be bound to be greatly facilitated by the availability of electronically based information which bypasses the intellectual limitations of individual teachers," according to Stonier.

One of Mr Clarke's comments was: "The computer is essentially a device without a brain. It is dangerous to suggest it has no intelligence. It requires a list of instructions to perform a task. Such a list is called a program."

Mr Rowe said, "The computing industry is developing in many directions at once." He touched on advances in microcomputing, robots, networks and Japanese projects in fifth generation or knowledge systems.

Mr Barnes final words were, "To the man of today, Mr Individual, stop! Sit back and consider the many ways in which computing has and will continue to affect your life, not just directly, but also through your community, your country and the world."

If you are interested in a copy of any of the above papers contact The Australian Computer Society. In the meantime let us all start thinking and planning for next year's School Symposium to be held in Sydney as part of the 11th Australian Computer Conference and Computer Exhibition.

> "The Computer is essentially a device without a brain"

EXPO '83 BRISBANE

In conjunction with the opening of our Brisbane store on November 1 we presented our product range at Expo '83 Brisbane's first Computer Exhibition, held from November 2-5.

The Computer Shop's exhibits included a Corvus/Omnimet Network, networking both Apple and IBM PC computers as well as the new Roland 8 pen plotter and Apple's Lisa.

During the course of the exhibition many demonstrations were given and questions answered. The Computer Shop personnel were generally run off their feet and gave away over 15,000 brochures during the four days of the exhibition.

SCIENCE TEACHERS SEMINARS

The Science Teachers Annual Conference held at Fort Street High School in Sydney, on October 21 and 22, was a great success.

A lot of interest was shown in the Physics Software packages, demonstrated by Janet Stenning from The Computer Shop. These included Ray Tracer, Precision Time, Kinematics, Addition, Saturn Navigator and Solar System. None however, were as popular as the latest science programs from MECC, now available from The Computer Shop.

AVALON COMPUTER FAYRE

TOWARDS 2000

What a fine example the teachers of Avalon School, the parents from Sydney's upper-north shore and P&C organiser Millard Lowe displayed at this three day computer exhibition staged during October 27, 28 and 30. It demonstrated once again, that the expanding use of the computer as an educational tool owes its momentum to the enthusiasm of involved teachers and parents.

The Computer Shop was pleased to be able to contribute computers for both parents and children to use. It provided another opportunity to demonstrate that the computer can help any child reach full potential by challenging and stimulating, and by allowing fast and slow students alike to learn at their own pace. Parents also see in the computer an opportunity for their own professional growth.

►

The Apple IIe, one of the computers exhibited by The Computer Shop for the Avalon Computer Fayre.

ACS Statement: "Policy and Attitudes on Education"

Also available from the Australian Computer Society is "A Statement from ACS on Policy and Attitudes on Education" dated October 1983, and available from the Chief Executive Office, ACS, GPO Box 4944, Sydney, NSW 2001. Tel (02) 232 5344.

The editor has been an ACS member for over five years and believes that more educators and students should join the ACS. This would enable the formation of a Special Interest Group made up of representatives from Schools and Universities together with computer professionals. Thus creating an advisory body to both the Education Department and society at large on computers in education.

The following is an extract from ACS statement on "Policy and attitudes in Education."

"ACS has no mandate to direct departments of education but it does have as the professional association a responsibility to society at large to do what it can to ensure that Australian children are given the best possible education in this area."

ACS's attitude to computers in education is that:

1. All pupils should experience some formal course in computer awareness relevant to their needs and their interaction with society.
2. Secondary schools should provide subjects in the area of computer studies in addition to any general computer awareness courses in years 7-10.
3. Secondary schools should provide matriculation level computing studies in addition to the computer studies subjects.
4 Whenever it is educationally sound to do so, appropriate use should be made of computing technology in the teaching/learning process across the curriculum and at all levels.

"Pre-service and in-service programs must be expanded to include adequate training for teachers, in both the primary and secondary schools.

"In the case of subjects concerned directly with the teaching of the discipline the time has come to ensure that they are taught by teachers recognised as computing teachers who have recognisable career paths within the subject discipline.

"How can one expect teachers to prepare their pupils to adapt to a society in which computer technology plays an ever-increasing part, unless they themselves are made to feel at ease with the technology."

Tertiary Sector

There is a shortfall every year in the number of qualified computer personnel available for employment.

ACS is actively seeking government recognition of this critical state and has requested the Federal Minister for Education to institute a full inquiry into the needs of computing in the tertiary sector.

WHAT'S IN A COMPUTER SYSTEM ?

The basic components of a personal computer system are (i) the microcomputer itself, (ii) a video monitor, and (iii) a disk drive for information storage.

Microcomputer. The brain of a personal computer system is the microcomputer, guided by a highly-sophisticated integrated circuit known as a "microprocessor".

The computer can receive information from its keyboard or from a disk drive. It can send information to the video monitor, to the disk drive for storage, to a printer, to a telephone line, to electronic control devices.

Memory Capacity. Computers are often classified by their internal memory capacity, also known as Random Access Memory (RAM). RAM is measured in kilobytes (abbreviated as "K"), with one byte representing one character of information. Thus, you will hear reference to a "64K computer".

Video Monitor. A video monitor (screen) is necessary to see the text and graphics generated by the computer.

Disk Drive. Disk drives retrieve and store computer programs and information from magnetic disks. The disks generally used with personal computers look like ungrooved 45rpm records made from magnetic recording tape. You may hear them referred to as "diskettes" or "floppies".

Diskettes store two main types of information: computer programs and data.

Programs ("software") are the instructions that tell the computer what to do with raw information (data). For instance, you might buy a program to help you monitor student performance. The program lets you enter the results of each test your students take; that information becomes data on the disk. Then you can have the program work with that data to determine how one student is doing, how the class as a whole did on a certain test, etc. Similarly, you could buy a word processing program and create many different documents for different needs – letters to parents, reports to supervisors, grant proposals, etc.

One computer can control two or more disk drives, giving the user rapid access to a lot of information.

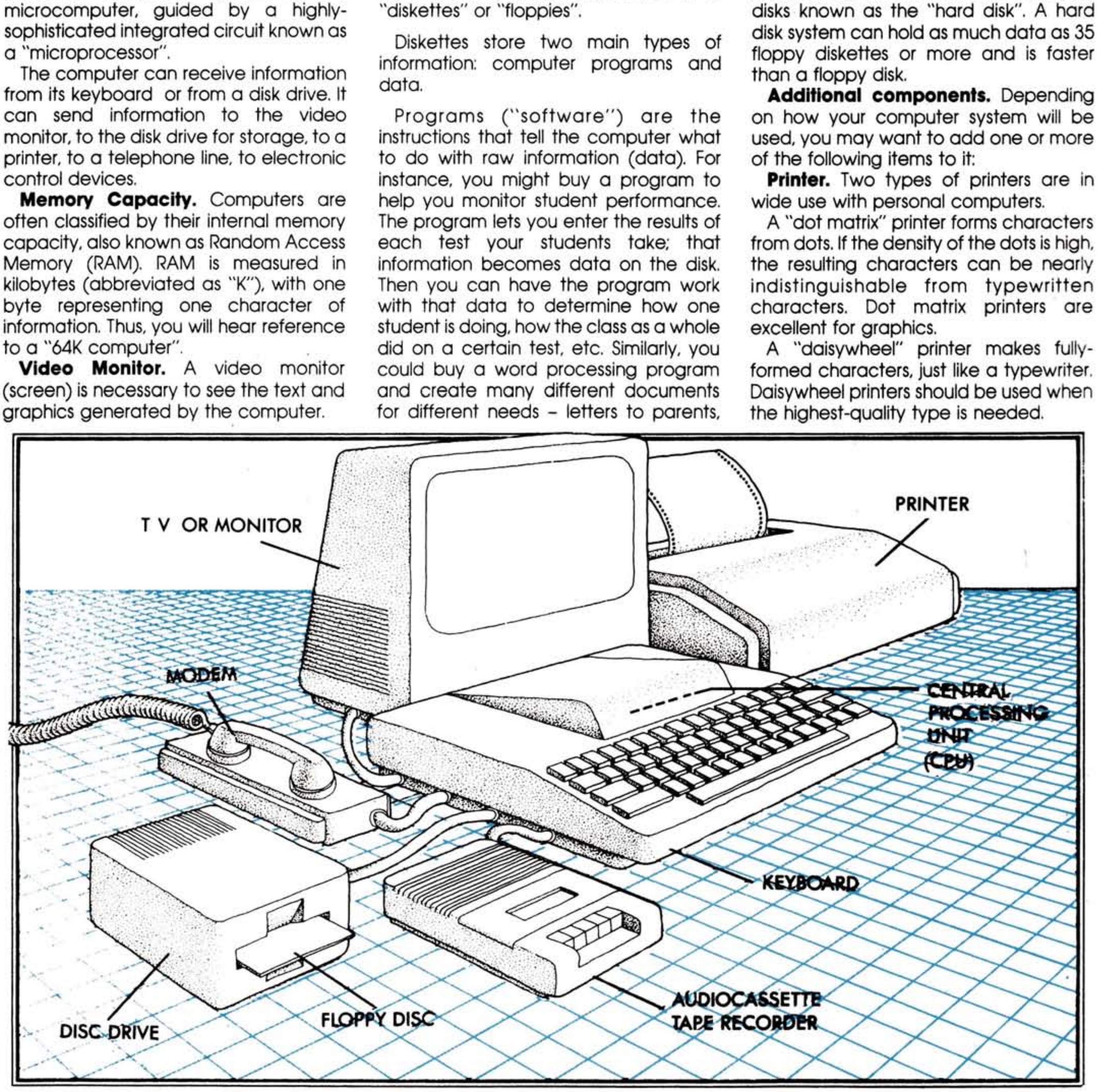
Users with large data storage needs will be interested in an alternative to floppy disks known as the "hard disk". A hard disk system can hold as much data as 35 floppy diskettes or more and is faster than a floppy disk.

Additional components. Depending on how your computer system will be used, you may want to add one or more of the following items to it:

Printer. Two types of printers are in wide use with personal computers.

A "dot matrix" printer forms characters from dots. If the density of the dots is high, the resulting characters can be nearly indistinguishable from typewritten characters. Dot matrix printers are excellent for graphics.

A "daisywheel" printer makes fully-formed characters, just like a typewriter. Daisywheel printers should be used when the highest-quality type is needed.



Modem. "Modem" is an abbreviation of "modulator/demodulator". It is used to convert (modulate) computer signals into audio tones for transmission over telephone lines, and to demodulate incoming signals. Modems allow you to use your computer to connect with other computers all over the world – or across town to your school's professional services centre or the Education Department.

Graphics Tablet. This board is an electronic easel upon which you can create and alter drawings, schematics, architectural plans, etc. Your "paint-brush" is a special pen that connects to the tablet.

Plotter. Plotters are similar to printers, but are designed for graphics instead of text applications. Their ability to print onto plastic means they can be used to make transparencies. Since plotting pens of different colours can be inserted, plotters are also good for creating colour graphics.

A COMPUTER:

The best family Xmas present

The Christmas period is the perfect time to introduce your family to computing between trips to the beach or bushland. It just doesn't make sense to wait to invest in a computer. The amount of pleasure and value you will receive from the computer can begin today. The news continually tells us of the great new computers that are coming and we suspect that some people hesitate to buy their computer now waiting for something better to come along. As with cars the changes in the new machines are generally slight and make little difference to the user. The time wasted waiting for these newer models could be spent learning about micros with your own in your home or school.

After a brief introduction to the computer at home, you may also have time for a course at THE COMPUTER SHOP. We will have many courses in progress during January. These are developed to fit the needs of computer users at all levels. The courses run from several hours to several days. If January isn't a convenient month, call THE COMPUTER SHOP to find out about earlier or future courses.

The courses cost only $39.00 per day and are a non-profit area of our business.

HOW DOES A TEACHER MANAGE WITH ONE OR TWO COMPUTERS?

Initially with only one Apple Computer, Ms Trish Coote, a teacher from St Martha's Primary School, firstly introduced her own class of 28 to computing and then little by little, each class in the school. Some sound planning and the help of a few parents made it all possible.

Trish first attended a course at The Computer Shop, Annandale last January, and then prepared herself for the new school year together with the computers arrival. To introduce the children to the keyboard, she set up small cards with the letters F, R, L, B on them and asked the parents to donate old typewriters.

With the help of a few mothers she divided the class into groups of five or six. For Pre-Writing activities, Trish dumped LOGO patterns onto stencils and ran them off on a spirit duplicator. She explained that these had been made on a computer and a printer and a special language called LOGO.

The school now has a second Apple and all the children in the school, around 200 pupils, work in small groups using LOGO and various software packages. Both commercial packages and programs from The Computer Shop's Public Domain Library, on Social Studies, Language, Spelling and Mathematics were used.

ACCESSIBLE

The computers are always in use and are made available before and after school and during lunch hours. The systems are accessible and easy to use, especially to those children who have their own disks.

Students have easy access without being dependent on a network.

What did you do with your computer?

In these last 12 months many teachers and children have been introduced to the microcomptuer for the first time, including the 2000 primary schools who received their Apple and Logo as part of last year's "Kids Can't Wait" program. We suspect many of these micros came to the school very unexpectedly and were received with a variety of expectations and apprehensions.

The Computer Shop's staff, and many others will be interested to hear about the happenings after the arrival of the school's micro. ● Who took over? ● Who developed the program for use of the micro? ● What uses? ● What has developed over the last 12 months? ● Do you have more than one computer? ● What do you foresee happening in the next 12 months in your school? ● How many teachers are involved in using the computer? ● How many students are involved? ● What software have you found most valuable educationally?

Write to us and let us know what problems your school experienced and what your future needs are.

NETWORKING SYSTEMS . . .

Networking systems are NOT a must! Before we discuss various networking systems and modems available for the Apple, the IBM PC and the BBC Micro computers, our advice is not to wait until the school can afford a network, but to start immediately with one computer and add more computers and networking at a later date.

While there are many networking products on the market at the moment, most are designed to link up similar computers. In the coming years, we expect to see more and more products like Ethernet designed to link dissimilar computers, and more particularly, micros to mainframes.

Local networks

Local networks consist of many "personal work stations" physically connected together by cable. Individual work stations have local computer power, but share disk storage and other expensive peripheral devices such as printers.

Modems

A network that needs to cover a wider area usually links stations via standard telephone lines. This offers the advantage and flexibility of being able to place stations almost anywhere in the country, allowing geographically divided schools and departments to communicate easily with one another. An obvious application would be to transmit administration details between offices and schools. Another use is to exchange public domain type software, or ascertain whether a certain book is available in a library at another school.

Telecom-approved modems that are available from The Computer Shop for the connection of micro computers, to other micro's or mainframes or public data bases through a telephone line are:

- Modem Technology's Universal Data Modem 1200, which is a multi-speed high function modem with selectable speeds of 300, 600 and 1200 bits per second under manual or computer control. The UDM 1200 has auto-dial, auto answer, a loop back facility for self-checking and a simple user manual. When the modem is not operating, the telephone line is free for other uses.
- Electromed's Sendata 300 is a new direct connect 300 bits per second modem and fits under the base of a telephone.

The modem is very simply installed and requires no operator training. It attaches to the existing telephone wall socket and becomes fully operational with the flick of a switch. It has operating lights on the front panel, indicating when it is receiving or transmitting data and costs around $199.00.

Digicard Classroom Network

Digicard is a low-cost network that allows Apples in a classroom environment to share two floppy disk drives and a printer. The unit that houses the two disk drives and connects up to 56 Apple computers, is called the Master

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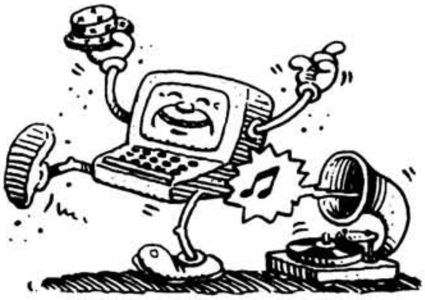
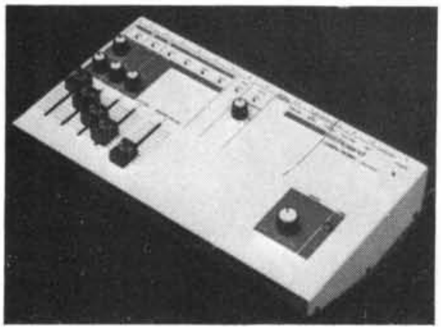
MUSIC EDUCATION





Compu-Music

The CMU-800 allows you to make music with your personal computer and a home stereo set. No piano keyboard is necessary because each key on a piano keyboard has a corresponding key on the computer keyboard. This allows anyone to write music or hear chord combinations, while the computer does the work of actually playing the instrument.

Compu-Music is a music synthesiser that creates piano, bass and drum sound music. A student can alter the pitch and change the tempo of a piece with or without changing the key.

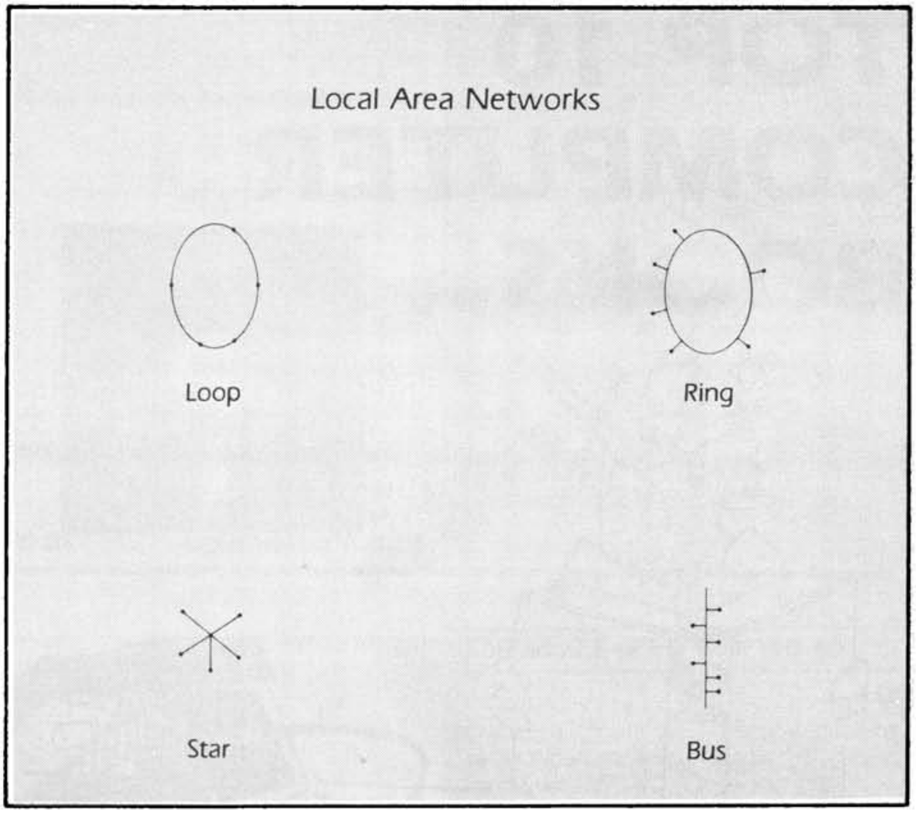
Compu-Music is capable of controlling eight external synthesisers simultaneously, a facility previously only available on devices costing $3000 plus. The CMU-800 is available with software packages compatible with Apple, IBM PC and NEC, and costs around $495.00 ex-tax.

Phone The Computer Shop for a demonstration of either the Compu-Music or Sound-chaser.

Sound-chaser

The SOUND-CHASER, combined with an Apple computer is used as a tool to reinforce basic musical concepts. Students can practice their concepts with immediate visual and aural feedback. Using a piano-type keyboard that interfaces with the computer, the student becomes a musician, conductor, composer and producer of an individual or group musical composition.

The Sound-chaser can record student's work using 16-track sound-on-sound capabilities – the same recording principles as a professional recording studio. It displays the music as it's played, and has full editing potential, With the use of a printer, the student can have a printed copy of the composition. Use Sound-chaser with Music-Tutor software. The Sound-chaser costs around $1,190 ex-tax.



Controller. The Master Controller does not require a separate computer as each computer is an independent system. Each student's Apple is connected via a 26-way flat ribbon cable to a board called the Network Interface.

A printer can be accessed by each Apple if it is plugged into the Master Controller.

The system can work both in sequential or simultaneous mode. This means that the students and teacher can all be working on the same program, or, by switching the Slave Unit to Network, students can access any of the programs stored the Master Controller which comprises the two disk drives. Add-on disk drives may also be connected to the Network Interface allowing complete computer independence in the Local mode if desired.

One of the advantages of this system is that only one copy of the software needs to be purchased, and there is no need to purchase a hard disk version.

Corvus Omninet School Network

Omninet allows Apples throughout a college or school complex to share a common hard disk. A Corvus Winchester Disk System can provide from five to 80 Megabytes of mass storage, and may optionally be attached to a "Mirror" back-up system, which will back up the hard disk on to video tapes.

Up to 64 computers can exist easily on one network, via a cable section between the workstations.

In a school environment the Corvus hard disk and Omninet multifunction networking system can be shared between the classroom, administration, and library etc, as the entire system does not have to be dedicated to one application.

The shared disk can be split up into areas which can be accessed by a single computer or several designated computers.

Also, the disk can be split into several volumes, each of which can be accessed by different operating systems, to allow a mix of say Apple DOS, UCSD PASCAL and CP/M files on the same network. The system allows for spooling and intercommunication between programs, and provides file locking – to avoid the confusion that results when one user reads a file just as another writes to it.

The costs of the Corvus Hard Disks to schools are approximately:

5 Megabyte (retail $3995 + tax) $3459;
10 Megabyte (retail $4995 + tax) $4326;
20 Megabyte (retail $5995 + tax) $5192.

The Disk Server (required if there is more than one user on the system) (retail $1500 + tax) $1299 per hard disk.

The Interface or Omninet Transport Card (required for each Apple on the network) (retail $725 + tax) $628 per Apple. Special prices quoted are available from The Computer Shop.

Econet — BBC Network

The Econet system is designed to network the BBC microcomputers. It is also a bus-type network with all stations (up to 254) connected by a single cable (up to 500 metres separation). Unlike the Digicard system – where one does not lose the use of the master station – one does not have the use of the BBC microcomputer which has been dedicated as a "file server" or "print server", although either can immediately revert to being an ordinary micro if disks or printer are not required.

A typical system comprises:

Econet Interface – The Econet Interface is fitted to the main circuit board of each BBC microcomputer on the network.

File Server – the File Server is a dedicated BBC microcomputer with a second 6502 processor and at least one disk drive. Shared and public files can be held on the disk drive. Private files can only be accessed or deleted through a password created by the person who sets up the files.

Printer Server – The Printer Server is a dedicated BBC microcomputer running the printer server program.

Clock and Termination Box – Each network needs one clock and two terminators, which are connected to the network.

Software for the above:

1. Econet interface software, in ROM, consists of the Network Filing System which provides functions for the network such as VIEW, REMOTE, and NOTIFY.
2. File station software which controls disk storage.
3. Printer station software is on EPROM.

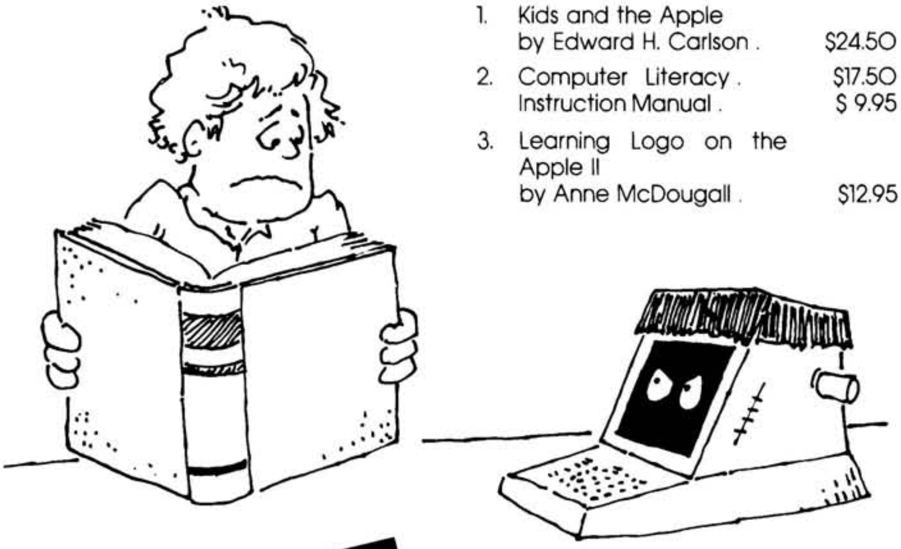
Schoolbus

Schoolbus is Apple Computers classroom network, referred to by Apple as "The Classroom Computer Connection."

Continued on next page ►

. . . FOR MICROS

TOP 10 COMPUTER BOOKS



1.	Kids and the Apple by Edward H. Carlson .	$24.50
2.	Computer Literacy .	$17.50
	Instruction Manual .	$ 9.95
3.	Learning Logo on the Apple II by Anne McDougall .	$12.95
4.	Apple II User's Guide by Lon Poole, Martin McNiff & Steven Cook .	$27.95
5.	An Introduction to Microcomputers Volume O by Adam Osbourne and David Bunnel .	$11.95
6.	A Bit of Basic by Thomas Dwyer and Margot Critchfield .	$ 9.50
7.	Computer Programming for Kids by Royal Van Horn .	$12.95
8.	6502 Assessembly Language Subroutines by Lance Levanthal and Winthrop Saville .	$22.55
9.	Games Apple Play by M. Capella and M. Weinstock .	$24.95
10.	Mostly Basic: Applications for Your Apple II by Howard Berenbon .	$19.95

USER GROUPS AND CLUBS

THE NSW CEG

The NSW Computer Education Group, established in 1979, is a useful forum for people interested in computers and education.

The NSWCEG has become a state-wide organisation representing the interests of people involved in all aspects of computer education (K-12, post-secondary, tertiary and community). The CEG supports a resource, information and contact network with workshops, meetings, conferences, special interest groups, a newsletter and a quarterly journal, "Information Transfer".

Membership to the NSWCEG costs $20.00 pa and membership application forms can be obtained by writing to:

The Secretary/Treasurer
CEG (NSW)
PO Box 148
Broadway NSW 2007

APPLE USERS GROUP

The Apple Users Group holds regular club meetings and produces a monthly journal called Applecations.

The publishers are always looking for original or useful sub-routines, with suitable documentation. Reviews are welcomed because they enable other Apple users to assess the usefulness of a product before buying it.

The group meets at 6.30pm on the second Monday of each month at Sydney Grammer School, Stanley St, Sydney.

They share experiences, demonstrations, trade ideas and goods and discuss developments in the Apple world.

Members receive regular copies of the magazine and have access to the Software Library. Membership applications are available from:

Apple User's Group (Sydney)
PO Box 505,
Bankstown NSW 2200

A REQUEST TO ALL STATES (other than NSW)

Computer Education Groups and Computer User Groups...

Please send us a copy of your magazine so that we can share your ideas and suggestions. Thank You

NETWORKING SYSTEMS FOR MICROS

Continued from previous page

The Apple Schoolbus system allows up to 30 student stations to share the disk drives and printer of the instructor's computer, creating a substantial savings over the cost of equipping each computer with a disk drive, and it minimises disk handling. The teacher can control which lessons and tests each student receives, view any student's work, and send messages. Students can send messages to the instructor and access any files the teacher has opened to them.

The School Bus instructor's stations consists of:

- An Apple //e or II Plus;
- The Schoolbus Interface Card;
- A video monitor;
- The Schoolbus Operating System disk;
- One to six disk drives;
- Most DOS 3.3 software.

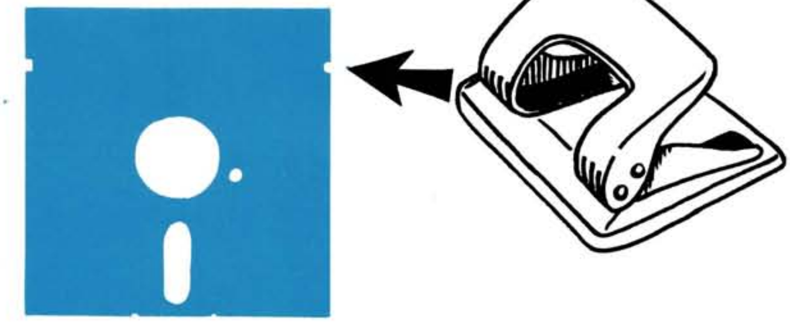
One or more printers may also be connected to any station. Each student has an Apple IIe (or II or II Plus), a Schoolbus Interface Card, and a monitor.

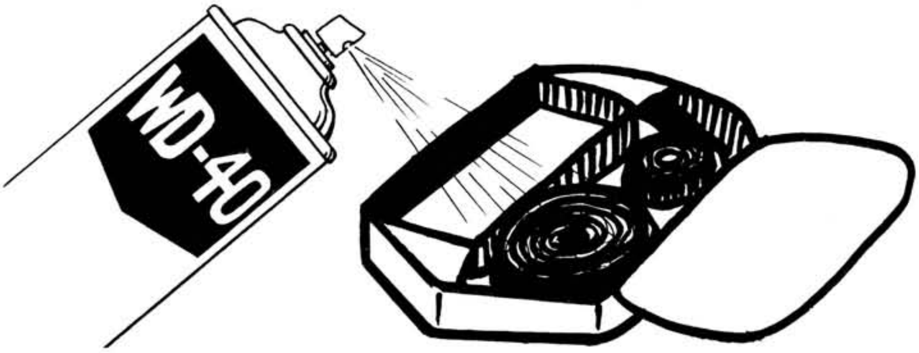
Schoolbus is currently a prototype product and is projected to be available early in 1984. Please check with The Computer Shop for actual availability.

QUICK TIPS

Use both sides of the disk:

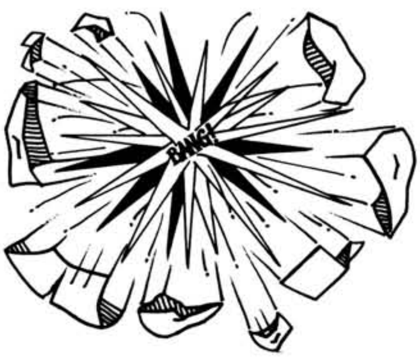
Use a paper punch available in a newsagency for $1.20 to punch a half circe hole on the edge of the disk exactly opposite the half square cutout on the other side of the disk. Flip the disk over and use as normal.





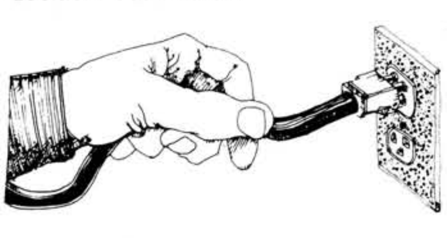
Spread ribbon ink with WD-40

Carefully pry open your ribbon cartridge (most will open, some are sealed permanently). Spray the ribbon lightly with WD-40. Close the cartridge and let it stand at least 24 hours so the ink from the sprayed edge of the ribbon has time to flow into the other portions of the ribbon.



Beware!

If you have several peripherals to use with your computer ensure you plug them into the same power line or wall plug. Two wall plugs near each other could in fact go separately to your fuse box and the polarity of one could be the reverse of the other. A violent electrical accident could result!

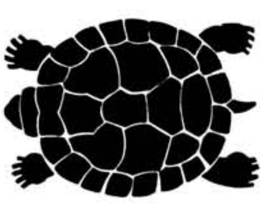


Back-up copies of disks

Software programs can be damaged, particularly when they are handled by dozens of young inexperienced users. If possible you should make a copy of your disks so if one is damaged you can use the "back-up" disk. Many software publishers will supply a back-up disk free or at a small price. This practice from publishers should be encouraged.

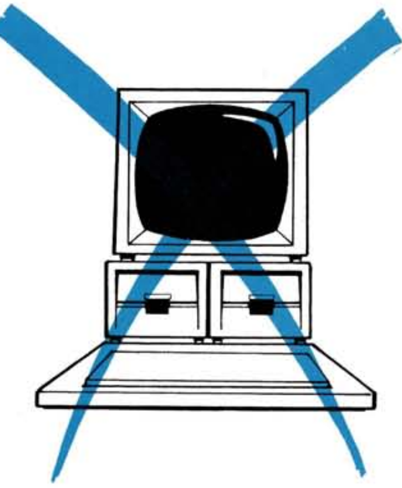
Logo tip

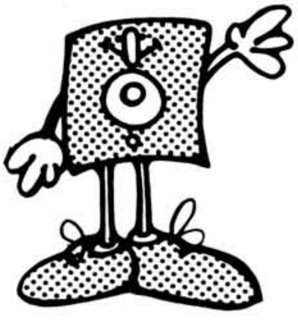
To teach your students about the directional movements and turns of your LOGO "Turtle" use a metal board and a magnet (glue paper eyes and tail on it). Either the students or the teachers can move the turtle in response to commands from others.



Caution!

Do not place your monitor/TV on top of your disk drives without a metal shield between them! The transformer in the bottom of the set may effect the data handling of the drive.





MORE QUICK TIPS

Kids teaching kids through computers

Try using your brighter or older students in the school to write programs for younger or for lower achieving students. The programs could be for drill and practice in various skills for the lower level students.

Computer literacy films

For films to enhance your computer literacy program contact your:

State Film Library,
1 Francis Street,
East Sydney, NSW 2010
Ph 339 7345 or 339 7385

Drill and practice versus "deeper" levels of computer usage

Some schools use their computers mainly for drill and practice on conventional subject matters such as maths and science. Others touch on nearly every subject area – from history to art, music to languages, and typing to writing. They use software tools such as word processing (for making writing easier and more fun), database packages for storing and retrieving (watch the excitement of analysing data to discover facts in history lessons), filing and reporting, including pie charts, Visicalc and accounting packages for commercial subjects.

Pilot versus basic and logo

PILOT stands for Programmed Instruction Learning or Teaching. It is a simple programming language which allows every teacher, including those who have never laid hands on a computer, to be a computer instructor, and allows every student to be a programmer, including primary school students. BASIC is too complicated for primary kids and LOGO, although excellent for graphics design and creativity, is not flexible enough to be used easily in social studies, language, art and other verbally orientated subjects according to some teachers.

PILOT is a language used to create drill and practice programs. It has graphics capabilities, editing features, colour and sound. The few commands are single key strokes and the language is easy to remember. It combines text and graphics on the screen at once, so a first-former could illustrate a story and a fourth-former might draw a science diagram and label it. It is worth a try!

(PILOT Classes are run at The Computer Shop by Dr John Barrett).

Quick tips

- Always position computers away from window glare.
- Each week add a computer word to students spelling list.
- If students need a lot of typing practice, but have limited access to computers, ask parents, friends, and neighbours to donate old typewriters.
- Have students practice thei penmanship by writing out commands to a favourite program.

Let students review software

Are you looking for a quick way to familiarise students with your entire software library? Assign each child a different piece of software to run and then review in written form. Reviews can be similar to the movie commentaries kids see in the newspapers. They can briefly describe the program's activities, discuss its strengths and weaknesses, and perhaps even rate it on a scale from 1 to 10.

Display the reviews on a bulletin board near the computing area. You'll be surprised how quickly students will begin to expand their software use!

Floppy Disk Storage —

Disk File Boxes with key-locking removable lids for storing 5¼" diskettes. A box storing 40 diskettes $39, 90 diskettes $75.

BITS TO BUY

BITS TO BUY

BITS TO BUY

Keep your computer cool

A fan greatly increases the life and reliability of computers, function cards, chips and power supply. Heat can build up inside the computer especially when extra cards are added. Fresh air is forced into the computer by the fan and blows across and around the components. Many mysterious problems will disappear when you cool your computer. Cost of fan, $115.

Chalk dust

Cover up your computer with a dust cover for just $7.95. Dust can cause havoc.

Koala pad

The Koala Pad is a Touch Tablet for the Apple computers. Use it as a graphics tablet to write or draw on the screen – or use it like a paddle controller or joystick. Its compatible with most game software. Your own overlays and software create a customised keyboard. For ages seven to adult. Costs $189.00.

HARDWARE

Lisa revolutionises the personal computer industry

Lisa, Apple Computer, Inc's newest personal computer, is the only personal computer system of its kind. Incorporating the latest software and hardware technology, district offices, large schools and universities will find this powerful new desktop computer system will set the standard for streamlining administrative functions.

Lisa (Local Integrated Software Architecture) introduces a new relationship between users and computers. Utilising a palm-sized device called a "mouse" that points and manipulates displays on the screen, users work naturally with familiar objects and tasks. No longer does a pressured administrator or office worker need to adopt rigid computer conventions or special languages.

Lisa embodies a radical change in how users work with computers. Conventional computers create obstacles for those who want to make their jobs more efficient. Apple used progress in microtechnology, plus advances in software technology, to remove many of those obstacles and to make a computer that really is simple to use.

How Lisa works

Lisa supplies the core functions of today's office: spreadsheet analysis, word processing, business graphs, graphics design, personal filing, and project management, yet it so easy to learn and use. Lisa lets you transfer data between applications and users and allows you to run existing programs and write new programs in widely used, high-level languages and operating systems.

The Lisa screen features graphic representations of familiar objects such as stationery, clipboards, waste-basket, file folders and other objects found in an office environment. These pictures also represent such tasks as writing, setting aside documents on the desktop, putting documents back in folders, or throwing documents away. Collectively, these objects form the "desktop manager", the part of Lisa's software "architecture" that organises information, documents, and tasks just as the user would in a typical office.

Once selected, an object is used just like its real-life counterpart. A file folder, for example, can be opened and the contents revealed; documents can be refiled, copied, taken out and changed, put in a new file, or thrown away.

The most common office task, writing a letter, begins by opening the stationery folder. Using the mouse, the manager points to the picture of the stationery folder on the screen and clicks the button on the mouse to select the folder. With another click of the mouse button, the stationery folder is opened and the contents are revealed graphically on the screen. If the manager wants to refer to a previously prepared document, he or she chooses another folder or disk object from the desktop manager and scans the information that's on file.

Six dynamic software packages

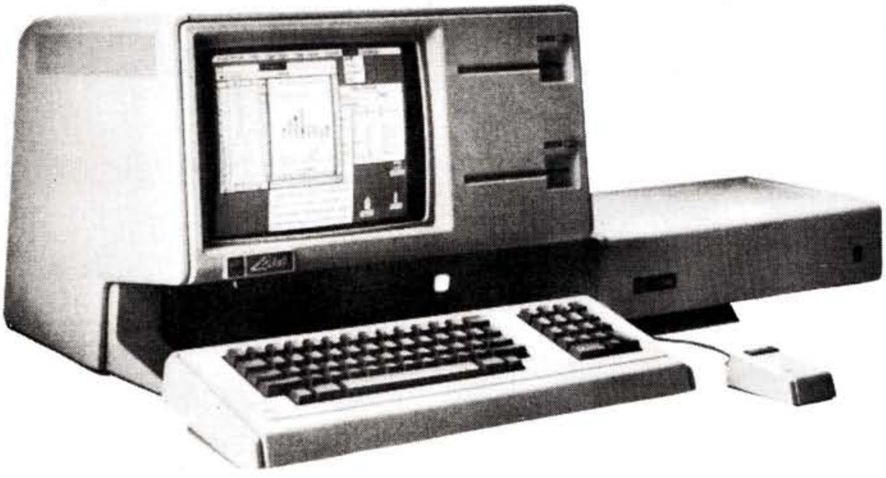
Lisa's six business/administration applications integrate with each other to form a remarkably complete, easy-to-use system.

LisaCalc, an electronic spreadsheet, handles budgets, forecasts, and other row-and-column format models that help users improve planning. It's huge worksheet (255 rows by 255 columns) lets the user test every variable that affects decisions. Using the mouse, LisaCalc models can be transferred into other documents in seconds.

LisaWrite is one of the most advanced word processors available for personal computers. It allows the user to create, revise, and print documents with no complex commands to learn. In addition, a user can print one document while simultaneously creating or editing others. Or use LisaList, a database application that searches, sorts, and extracts information at the touch of a button. You can choose to display the entire list or selected columns or rows. And columns can be added, deleted, expanded, narrowed, or repositioned at any time without re-entering data.

LisaGraph makes clear, concise graphs from even the most complex data while LisaDraw makes it easy to create flow charts, technical diagrams, maps, pictures, and symbols for reports and presentations.

LisaProject is a visual project-management tool that helps the user schedule and track complex projects. By dividing projects into a series of individual tasks, LisaProject helps the user manage deadlines, utilise resources, and track critical paths. Reports are available in Schedule, Task, and Resource formats. The user can easily move LisaProject schedules into LisaDraw for customisation.



Languages and peripherals

Lisa runs BASIC, Pascal, and COBOL high-level languages, allowing the user to augment administrative requirements as well as develop software for educational uses. A Lisa Applications Development Toolkit, to be made available, will help users create additional integrated programs for Lisa. Lisa is now available from The Computer Shop's Head Office, for $7750 – plus six software packages for $1225. The Lisa prices valid until 30th November, '83 only.

BBC MICRO MODEL B

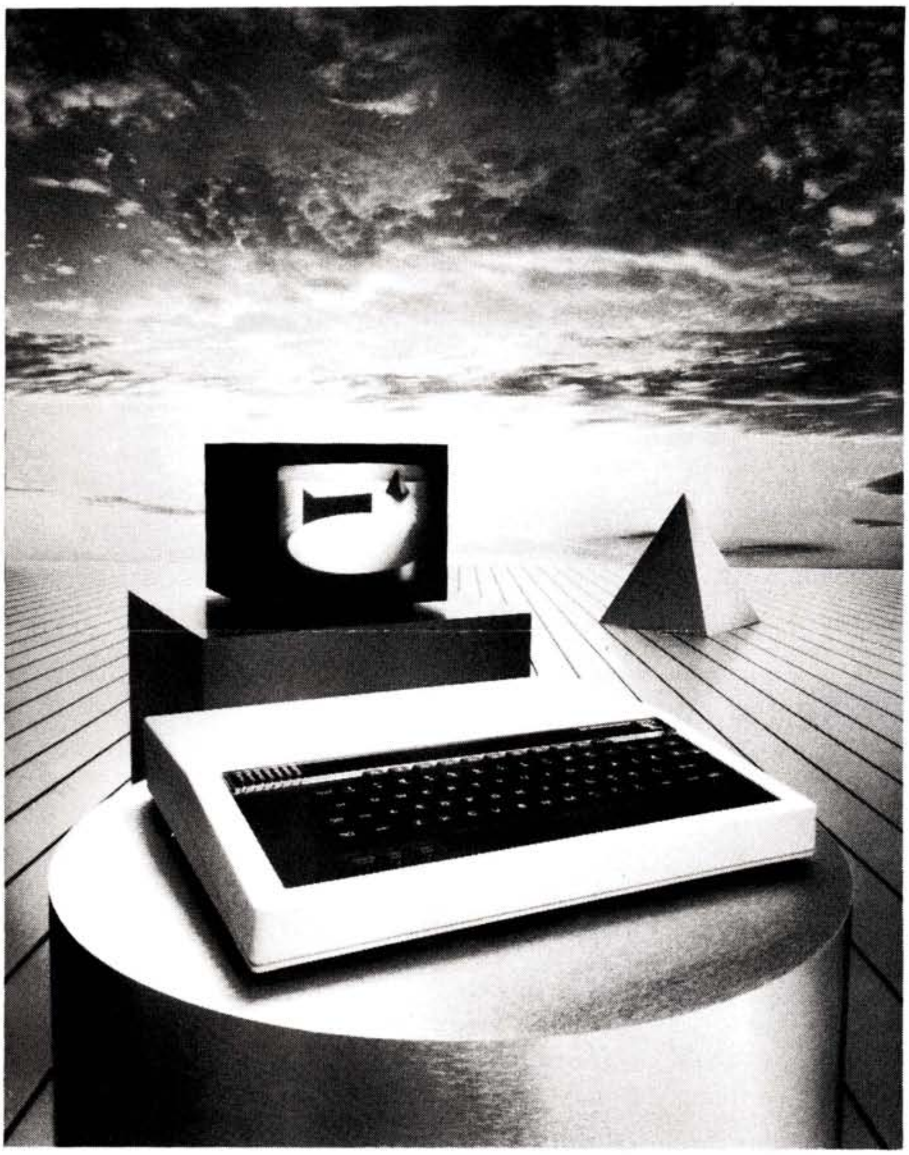
A fast powerful self-contained computer system capable of generating high resolution colour graphics and synthesising three voice music. The computer is contained in a rigid injection moulded thermoplastic case.

Basic

The Basic interpreter is an extremely fast implementation, very close to the Microsoft standard but with numerous powerful extensions

Applications Software

A range of applications packages has been developed.



Econet

The Econet communications network enables a number of computers to share expensive resources such as a printer and a disk "file server". The system is primarily intended for schools and colleges but also lends itself to many office and business applications.

- Up to 254 stations may share the network facilities.
- Connection between stations is by a four-wire cable.
- The network may be up to 1 kilometre from end to end.
- Very low interface cost on each computer.
- More than one printer or file server may be on the network.
- Any station can "VIEW" any other similar station's screen.
- Messages may be passed between machines.
- All inter-machine interaction can be barred to any specific machine or group of machines.
- Loading and Saving are the same as for cassette and disk.
- The File Server supports a highly sophisticated, hierarchical directory structure.

The printer server runs as a "background task" on any machine, and is virtually invisible to the user of that machine.

Disc

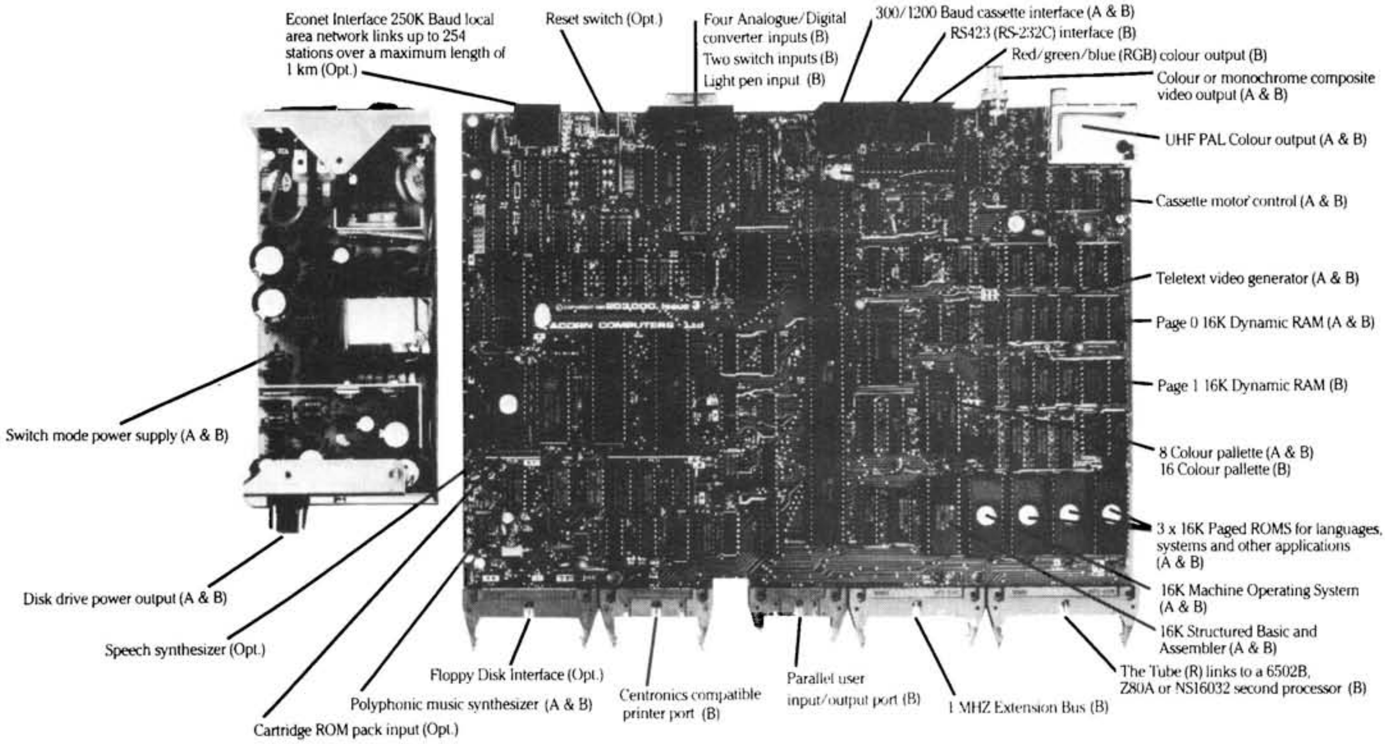
The Disc interface enables the micro to save and load programs and data on disk. It also permits random access data files.

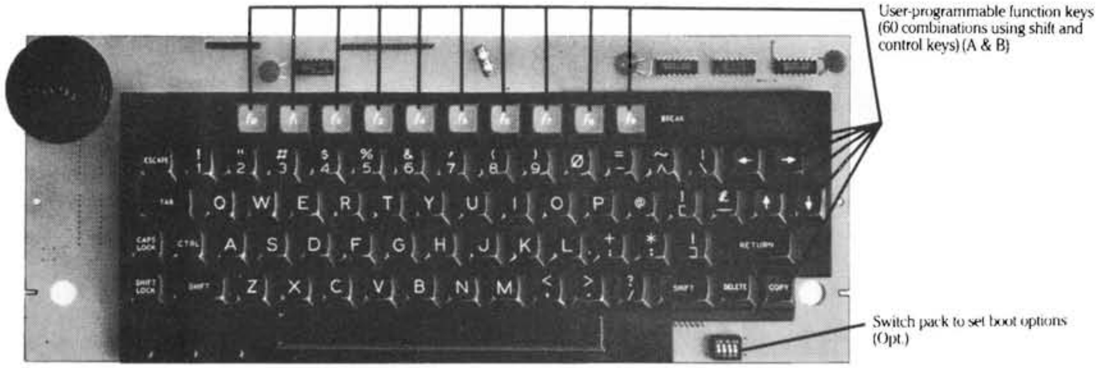
- Up to two double sided 80-track disc drives (800Kbytes).
- Power for disc drives are supplied by the computer.

◄

Left: the BBC Microcomputer, new to the NSW Department of Education Computer Contract.

BBC Microcomputer –
all the expansion you ever dreamed of, and it doesn't cost a fortune


Econet Interface 250K Baud local area network links up to 254 stations over a maximum length of 1 km (Opt.)
Reset switch (Opt.)
Four Analogue/Digital converter inputs (B)
Two switch inputs (B)
Light pen input (B)
300/1200 Baud cassette interface (A & B)
RS423 (RS-232C) interface (B)
Red/green/blue (RGB) colour output (B)
Colour or monochrome composite video output (A & B)
UHF PAL Colour output (A & B)
Cassette motor control (A & B)
Teletext video generator (A & B)
Page 0 16K Dynamic RAM (A & B)
Page 1 16K Dynamic RAM (B)
8 Colour pallette (A & B)
16 Colour pallette (B)
3 x 16K Paged ROMS for languages, systems and other applications (A & B)
16K Machine Operating System (A & B)
16K Structured Basic and Assembler (A & B)
The Tube (R) links to a 6502B, Z80A or NS16032 second processor (B)
1 MHZ Extension Bus (B)
Parallel user input/output port (B)
Centronics compatible printer port (B)
Floppy Disk Interface (Opt.)
Polyphonic music synthesizer (A & B)
Cartridge ROM pack input (Opt.)
Speech synthesizer (Opt.)
Disk drive power output (A & B)
Switch mode power supply (A & B)


User-programmable function keys (60 combinations using shift and control keys) (A & B)
Switch pack to set boot options (Opt.)

CODE:
Model A and B = (A & B)
Model B = (B)
Optional = (Opt.)

The BBC Microcomputer offers a vast array of interfaces (not those costly add-on cards). Its highly structured Basic Interpreter positively encourages good program design.

Linked into the super-fast Basic is an extremely friendly interactive and relocatable Assembler.

The available range of compatible operating systems, which may be co-resident, includes 300/1200 Baud Cassette, 5¼"/8" Disk, Network, Teletext, Prestel and Cartridge filing systems.

The Computer Shop
The Computer Shop Pty. Limited (Incorporated in NSW)

BBC Microcomputer

The Computer Shop Pty. Limited (Incorporated in NSW)

N.S.W.	Head Office	74 Parramatta Road, Annandale 2038	(02) 517 2999
	Richmond	10/14 Bosworth Street, Richmond 2753	(045) 78 2377
QLD.	Brisbane	137 Melbourne Street, South Brisbane 4101	(07) 44 6929

What's the 'e' stand for?

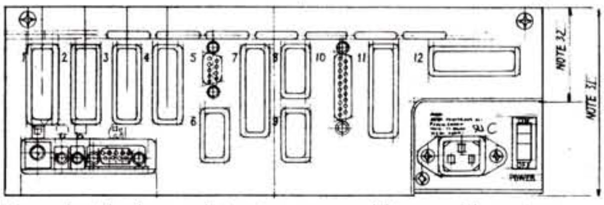
"Enhanced."

Which is another way of saying that Apple's come out with an impressive new version of the already impressive Apple® II, the world's most popular personal computer.

What's more, the Apple IIe has a bundle of features not found in the Apple II without the "e."

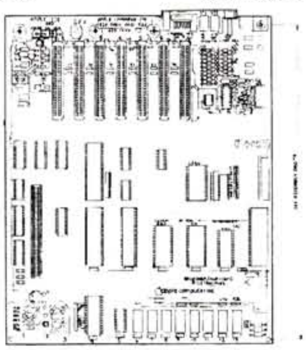
For example:

A standard memory of 64K (versus 48K) that's easily expandable so you can create fatter files and crunch larger numbers of numbers.



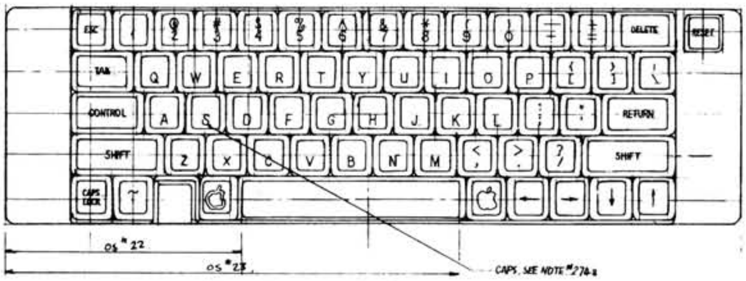
Improved peripheral ports make it easier to connect and disconnect disks, monitors, printers, game controllers and more.

A new, improved keyboard, with a complete set of ASCII standard characters. Plus full cursor controls, programmable function keys and a rapid auto-repeat feature built into every key on the board.



The Apple IIe mother board provides more memory using far fewer components than that of its predecessor, for even more reliability.

Both upper and lower case characters. (And if you want to see more of them on the screen at one time, a low cost 80-column display is available.)



A full ASCII keyboard makes the IIe even easier to use.

Improved peripheral ports. Which make it a lot easier to connect and disconnect printers, game controllers and all those other wonderful things that go with an Apple Personal Computer.

Self-diagnostics. A special feature that makes it easy to give your computer a thorough check-up.

Plus an even more reliable design. Achieved by reducing the number of components—which is to say, the number of things that could go wrong.

Also, bear in mind, all of the above makes the Apple IIe substantially easier to use.

Especially when you consider that it still has all those other virtues that made the Apple II the standard of the industry. Including access to more accessories, peripheral devices and software than any other personal computer you can buy.

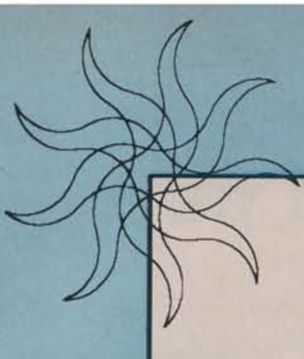
So come on down to our store, to experience the IIe for yourself, and to learn more about what the "e" stands for.

We'll be happy to spell it out for you.

apple®

The most personal computer.

©1983 Apple Computer Inc.

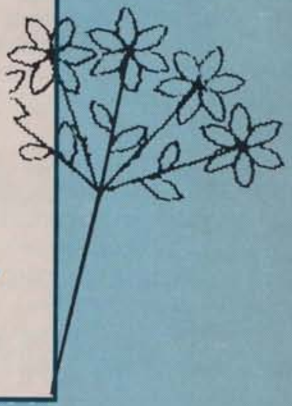


JANUARY '84

The Computer Shop

THE EDUCATION SPECIALISTS

COMPUTER TRAINING COURSES



The Computer Shop Pty Ltd (incorporated in NSW)

N.S.W.	Head Office	74 Parramatta Road, Annandale 2038	(02) 517 2999
	Richmond	10/14 Bosworth Street, Richmond 2753	(045) 78 2377
QLD.	Brisbane	137 Melbourne Street, South Brisbane 4101	(07) 44 6926

SUMMER COMPUTER COURSES for teachers, children and parents

The Computer Shop specialises in Education. The response to our computer courses held throughout 1983 has been far beyond expectation, with over 1000 students having attended in small groups of no more than 20. Daily Computer Training Classes are held throughout the Summer. Classes for the computer novice just beginning to think about computers and classes for the more experienced computer user, looking to be introduced to a wider range of applications.

Now that the NSW Government Contract for Computers in Education has been announced, how do teachers learn enough about computers to be able to use them in their everyday curriculum?

With 10 microcomputers and only 20 students per class The Computer Shop's classroom gives everyone a chance to have fun. With the aulity of the lecturers, and languages such as PILOT, LOGO and BASIC, but you'll feel you can do it and be back during the May holidays saying you can do it.

Using PILOT you will be able to incorporate a variety of computer-aided learning lessons in your classroom. Read how Trish Coote, a teacher from St Martha's Primary School learnt how in this issue of Education News, by attending the Computer Shop's Summer School during January '83.

Daytime:
9.30 to 3.30 $39.00 per course
LOGO
9.30 to 12.30 $20.00 per course
FOR CHILDREN AND PARENTS
Only ½ day 1.00 to 4.00
$20.00 per course

1984 SUMMER SCHOOL

JANUARY:
4-Wed
Intro to the Apple IIe Hardware & Software John Barrett
4-Thurs
Intro to the IBM-PC Hardware & Software Jackie Chalmers
6-Fri
Word Processing in Business & Administration Maria Timmins7-Sat
Intro to Basic I Jim Rennie
9-Mon
Intro to Pilot for Computer-Aided Teaching John Barrett
10-Tues
Learning Logo for Teachers & Parents Diana Ryall
11-Wed
(a.m. & p.m.)
Learning Logo for Children & Parents Diana Ryall
12-Thurs
Intro to Basic I Jim Rennie
13-Fri
Writing Skills & Word Processing for Students Maria Timmins
14-Sat
Advanced Uses of Basic II Jim Rennie
16-Mon
Intro to the Apple IIe Hardware & Software John Barrett
17-Tues
Intro to the IBM-PC Hardware & Software Jackie Chalmers
18-Wed
Business and Administration Application on the Apple IIe Grahame Humphrey
19-Thurs
Business and Administration Application on the IBM-PC Marion Taylor
20-Fri
Word Processing in Business & Administration Maria Timmins
21-Sat
VisiCalc/MultiPlan – Electronic Worksheet & Financial Planner Tony Lee
23-Mon
Learning Logo for Teachers & Parents Diana Ryall
24-Tues
(a.m. & p.m.)
Learning Logo for Children & Parents Diana Ryall
25-Wed
Into to Basic I John Oakley
26-Thurs
Intermediate Uses of Basic II John Oakley
27-Fri
Advanced Uses of Basic III John Oakley
28-Sat
Writing Skills & Word Processing for Students Maria Timmins

About the courses

Introduction to the personal computers: Includes the main components, the terminology, the software programs, how they are applied for use in the school, business and the home.

Introduction to Basic: A course designed to enable a novice programmer to write short, non-mathematical programs. The main purpose we see for teaching programming is to teach the concept that COMPUTERS AND THEIR PROGRAMS ARE MADE BY HUMANS! – NOT MAGIC!

Advanced Basic: Will give programmers the tools needed to develop more complex programs and to use the Apple II graphics, sound and file processing capabilities.

LOGO Lessons: LOGO which comes from the Greek word LOGOS ("thought" or "word") is a programming language with a special philosophy. This philosophy is called discovery learning: it draws on Jean Piaget's theory that people learn by doing. In this case, children acquire thinking skills by giving the computer instructions.

Word processing: An introduction to Word Processing, that magic typewriter which fixes errors without erasing, that lets you throw away your red pen forever, that makes writing not only easier, but fun too! Using Bank Street Writer and Word Handler as a writing tool for students and Zardax for business and administration.

Business applications: Including PFS the well designed easy-to-use filing and information retrieval system; and the General Manager, the most user-orientated database program.

Visicalc/Multiolan: Visicalc virtually eliminates the calculator, pencil and paper in developing plans and analysing results. Any problem that can be expressed in rows and columns can be solved quickly and accurately with Visicalc or Multiplan. Visicalc can be used to develop budgets and financial forecasts, to project enrolments and facilities needs, to plan and trade textbook and supply purchases etc.

Pilot is a language used to create drill and practice programs. It is an easy language for teachers and children and is flexible enough to be used in social studies and language arts.

Other courses

Our Training Room set up with ten (10) computers is available for you to hire at $200 per day. Lecturers are available if requested. Other courses available include: Pascal, Fortran, Cobol, advanced uses of application packages such as DBASE II, LOTUS 1,2,3, etc subject to the number of people interested.

About the LECTURERS

Dr John Barrett from the School of Education, Macquarie University, has studied and taught extensively the applications of Computers in Education. Dr Barrett specialises in teaching PILOT for developing Computer-Assisted-Instruction. PILOT stands for Programmed Instruction Learning or Teaching.

Mr Grahame Humphrey from The Correspondence School in Sydney, is co-ordinator of an extensive administration network using Apple II computers, a Corvus Hard Disk and an Omninet Networking System.

Mr Tony Lee an Engineering Graduate from the University of NSW has worked 10 years in the manufacturing industry. He has extensive experience in applying the personal computer to real-life management problems.

Lieutenant-Commander Jim Rennie Training Development Co-ordinator at the Navy Trade Training School in Sydney, teaches BASIC and uses Apple II computers in technical training. BASIC stands for Beginners' All Purpose Symbolic Instruction Code.

Diana Ryall Education Co-ordinator for Apple Australia specialises in the teaching of Apple LOGO. LOGO is an exciting interactive language that enables students and computer novices to quickly become computer literate. It enables students to exercise their creative and logical thinking skills.

Mr John Oakley is a Senior Lecturer at The Mitchell College of Advanced Education, Bathurst, lecturing in Educational Computing. Mr Oakley teaches BASIC, the most popular language for microcomputers.

Ms Marion Taylor has been extensively involved with word processing and administration in particular in the use of Wang, Jacquard, Ibex and IBM computers.

Ms Maria Timmins uses Bank Street Writer and Word Handler to teach simple commands, so that students can easily and quickly, write, edit, proof-read and complete their writing activities. She uses Zardax to teach the applications of word processing in business and administration.

Ms Jackie Chalmers draws on more than 15 years computer teaching experience, some of which was spent as a Training Officer for Apple.

COURSE ENROLMENT FORM

RESERVATIONS ARE REQUIRED
AS CLASS SIZES ARE LIMITED

NAME . . . .

ADDRESS . . . .

. . . .

PHONE: Home . . . .

Work . . . .

SCHOOL OR ORGANIZATION . . . .

. . . .

PLEASE COMPLETE THIS FORM AND
MAIL WITH YOUR CHEQUE

I WISH TO ENROL IN THE FOLLOWING COURSES

DATE	COURSE NAME	AMOUNT
		$
TOTAL		$

The
Computer
Shop

THE
EDUCATION
SPECALISTS

The Computer Shop Pty. Limited (Incorporated in NSW)

N.S.W.	Head Office	74 Parramatta Road, Annandale 2038	(02) 517 2999
	Richmond	10/14 Bosworth Street, Richmond 2753	(045) 78 2377
QLD.	Brisbane	137 Melbourne Street, South Brisbane 4101	(07) 44 6926

MONITOR II

High-Resolution Video Display for the Apple II Family

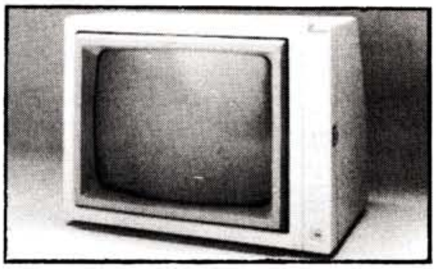
Monitor II is a custom-designed video display device that fits neatly on top of computer systems in the Apple II family. Designed to match the aesthetics and electronics of the Apple II family, Monitor II is equipped with a high-contrast, nonglare tilt screen for exceptional reading comfort. Its 12-inch screen can produce high-resolution graphics and sharp 80-character by 24-line text in a highly readable green-phosphor display. Monitor II connects easily to the computer via a standard cable supplied with every Apple II system.

Whether you're programming, forecasting sales, or editing text, Monitor II gives you the picture you need to get big jobs done.

Benefits

Monitor II ...

- matches the contours of your Apple II system ...
- provides a tilt screen that adjusts for maximum viewing comfort ...
- displays highly readable characters and graphics, because of its advanced vertical linearity circuit and cathode ray tube (CRT) ...
- reduces eyestrain and fatigue with its high-contrast, green-phosphor display on a non-glare screen, so you can work comfortably and productively with your computer for hours at a time.



AMDEK MONITOR

Everything about the Amdek Video-300 monitors is designed for easy reading and operation. It's compatible with practically every computer or word processing system, including the popular Apple, BBC and IBM PC personal computers. And the Video-300 offers a full one-year warranty covering both parts and labour.

The P31 green or amber phosphor display and non-glare screen allow strain-free viewing without distracting reflections – no matter how long you're using them.

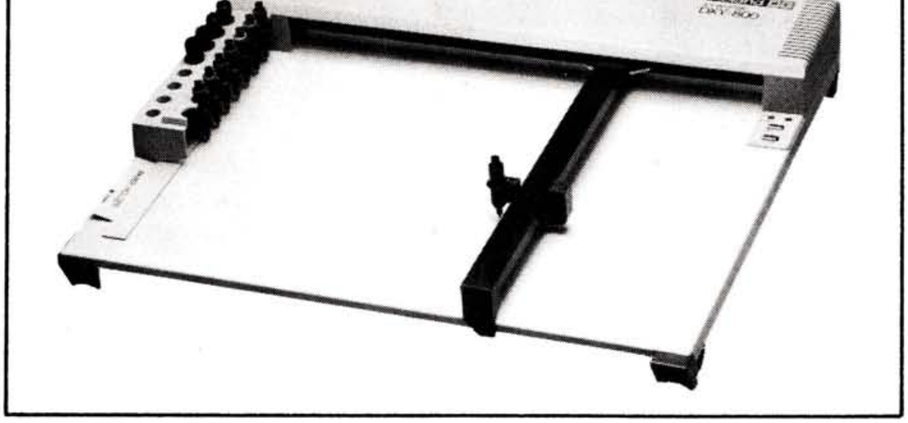
With 18MHz bandwidth and 900 lines (centre) resolution, the picture is sharp, clear and stable. And for easy portability, the cabinet is made of lightweight, industrial-grade cabinetry with a built in carrying handle.

See things more clearly and enjoy the benefits of less eye fatigue – with Amdek by Roland. Retail value $275. The Computer Shop's price $230.

ROLAND PLOTTERS

Roland's high performance 8 pen plotter also comes with a single pen variant (DXY101). These flatbed X-Y plotters are the most compact units of their kind and come in a portable carry case.

They have an effective plotting range of 360mm x 260mm (A3) and can operate on an incline up to 60°, a practical application in the work situation.



Maximum operating speed is 180mm/sec, very fast for this type of plotter. Optional speed settings allow adjustment for different types of pen and paper. Additional pen holders are supplied allowing use of a wide variety of pens with the DXY800.

Roland X-Y plotters feature a wide variety of command applications; vector commands, character commands, graphic commands and pen exchange commands.

Both RS-232C Serial and Centronics parallel inerfaces come build-in as standard features, making Roland X-Y plotters compatible with virtually every model on the market.

Ask about the Roland Graphics Pack including Apple logo.

The Roland plotter attracted many visitors at Brisbane's Expo '83 held November 3-6.

Retail price $1232. The Computer Shop price $1080.

The IBM Personal Computer and Personal Computer XT

IBM

Available from:

The Computer Shop PTY. LIMITED

N.S.W. Head Office:
74 Parramatta Road, Annandale 2038
(02) 517 2999

Powerful system unit. Both the IBM Personal Computer and IBM Personal Computer XT contain a small, powerful processor which uses advanced computer technology. The system provides a 16-bit 8088 high speed microprocessor with 40Kb (40,960 characters) of permanent memory. You can choose from a number of models containing from 64Kb (65,536 characters) [128Kb in the XT model] to 640Kb (655,360 characters) of user memory, depending on the complexity and size of the programs you run.

Easy-to-use keyboard. Your IBM Personal Computer is controlled from a separate, 83-key typewriter-like keyboard. The slim keyboard comes with a 1800 mm coiled cable that allows you to place it practically anywhere - even in your lap. And you can also adjust the typing angle to suit your working position. For added ease of operation, the keyboard includes a 10-digit numeric calculator pad and special "function keys" for activating commonly repeated tasks.

Information storage. The basic IBM Personal Computer has one diskette drive which reads and writes on a 5¼ inch double-density, single-sided diskette. Models also come with a diskette drive for double-density, double-sided diskettes. Further models are available with an optional second diskette drive mounted within the system unit. The XT model comes with one double-density, double-sided diskette drive plus one 10Mb (10,240,000 characters) fixed-disk drive.

A single-sided, double-density diskette can be used on all models and can store up to 163,840 characters (about 82 pages). A double-sided diskette can store 327,680 characters (about 164 pages). The formatting capacity of both these drives is increased from 160Kb to 180Kb and 320Kb to 360Kb respectively when operating with DOS 2.0.

Printing. A IBM Matrix Printer with graphics capability can be attached to your IBM Personal Computer for producing letters, reports and other documents. It can print in both directions in 12 character styles, at speeds of up to 80 characters per second.

Power-on-tests. For added reliability, the IBM Personal Computer runs a series of self tests and parity checks each time you turn it on.

Languages. Your IBM Personal Computer comes with the BASIC programming language. You can also use Pascal, COBOL, FORTRAN, APL and/or Assembler language for more advanced programming.

Display options. The IBM Colour Display or a direct drive RGB colour monitor* and the IBM Monochrome Display may be used to view information with both the IBM Personal Computer and IBM Personal Computer XT.

The 318mm (diagonal measurement) IBM Colour Display allows you to view up to 25 lines of text with either 40 or 80 characters per line. The 292mm IBM Monochrome display allows you to view up to 25 lines of 80 characters each.

Colour/Graphics. Up to 16 colours can be displayed for text applications, eight colours for graphics (two sets of four colours each).

Expansion units. There is an IBM Expansion Unit for the IBM Personal Computer, as well as one for the IBM Personal Computer XT. These Expansion Units may be used to increase storage capacity and expand the capabilities of each system. Each conveniently attaches directly to the System Unit and contains one 10Mb fixed-disk drive plus eight expansion slots for adding features or devices with optional plug-in adapters.

System expansion slots. In the IBM Personal Computer, there are five of these expansion slots in the system unit, making it easy to expand your system via plug-in optional adapters. One of these slots is used for the Diskette Drive adapter. With these adapters you can increase memory, add colour and graphics, connect joysticks* or paddles* for games, attach multiple printers, or communicate with other devices. The IBM Personal Computer XT has eight expansion slots, three of which are used by the Asynchronous Communications, Fixed-Disk Drive, and Diskette Drive adapters.

Communications. IBM offers three different communications adapters to help you access outside information networks or services, "host" systems and other remote devices. These include the Asynchronous Communications adapter, Synchronous Data Link Control (SDLC) communications adapter, and Binary Synchronous Communications (BSC) adapter. With the appropriate adapter and communications support program, you may link your system with a wide range of mainframe computers or devices by emulating:

- Terminals using asynchronous protocols such as the IBM 3101 and a start/stop teletypewriter
- IBM System Network Architecture (SNA) 3270 series of display stations using SDLC protocols
- SNA Remote Job Entry (RJE) terminal using SDLC protocols
- IBM 3270 type terminal using BSC protocols

The Asynchronous Communications adapter is standard with the IBM Personal Computer XT. It is an optional feature with the IBM Personal Computer. This plug-in adapter provides an RS-232-C standard interface for communicating at speeds of from 50 to 9,600 bits per second.

IBM Personal Computer Specifications

User Memory (RAM)	64 Kb - 544 Kb for the IBM Personal Computer 128 Kb - 640 Kb for the IBM Personal Computer XT
Permanent Memory	(ROM) 40 Kb
Microprocessor	High-speed, 16-bit 8088
Auxiliary Storage	One or optionally two 5¼", double density, single-sided 160 Kb or double-sided 320 Kb diskette drives for the IBM Personal Computer One double-density, double-sided 320 Kb diskette drive plus one 10 Mb (10,240,000 characters) fixed-disk drive for the IBM Personal Computer XT *Note*: The formatting capacity of the diskette drives is increased from 160 Kb to 180 Kb and 320 Kb to 360 Kb respectively when operating with DOS 2.0
Keyboard	83 keys, 1800 mm cord attaches to System Unit, 10 programmable function keys, 10-digit numeric pad, tactile feedback
Monochrome Display	High-resolution 80 characters x 25 lines, 256 characters and symbols anti-glare, green phosphor screen
Colour Display	25 lines of text (uppercase and lowercase) with either 40 or 80 characters per line. Text mode is capable of displaying 256 characters and symbols in 16 character colours or any one of 8 background colours
Diagnostics	Power-on self testing. Parity checking
Operating Systems	DOS, UCSD p-System, CP/M-86 *Note*: Only DOS 2.0 supports the IBM Personal Computer XT
Languages	BASIC, MACRO Assembler, COBOL, FORTRAN, Pascal, APL
Printer	Bidirectional, 80 characters per second, 12 character styles, graphics capability, up to 132 characters per line, 9x9 character matrix
Colour/Graphics	Text mode: 16 colours, 256 characters and symbols. Graphics Mode: 4-colour resolution: 320 horizontal x 200 vertical. Black & white resolution: 640 horizontal x 200 vertical. Simultaneous graphics and text capability
Communications	Asynchronous (start/stop) protocol. Up to 9600 bps SDLC protocol. Up to 9600 bps Binary Synchronous protocol. Up to 9600 bps

Keeping it simple

IBM put a great deal of knowledge about computers into designing its range of Personal Computers - not to make them complicated, but to make them simple.

Simple, so that a person will find it easy to understand. So that a person will find it easy to use.

And simple, so that a person will be more productive and more creative in personal, business or professional pursuits.

In addition, the IBM Personal Computer and IBM Personal Computer XT is simple to own. You get a complete, ready-to-run computer...at a cost you can *personally* afford.

Use the IBM Personal Computer and IBM Personal Computer XT in your office or your home, in the lab or at school. Use it to help educate your children, solve complex problems, perform scientific calculations, sharpen business skills - or just to relax and have some fun.

The Computer Shop PTY. LIMITED

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(02) 517 2999

A sensible investment

Whatever business you're in, your IBM Personal Computer and IBM Personal Computer XT can help you manage it more productively and more profitably.

Use it to get everyday time-consuming accounting or calculation tasks out of the way quickly. So that you can concentrate on the business of doing business. Your IBM Personal Computer and IBM Personal Computer XT can find information, compare it, compute it, change it, display it, or print it - faster and more accurately than doing these jobs by hand.

With the proper programming package, your IBM Personal Computer and IBM Personal Computer XT can prepare timely customer statements and automatically age accounts for tighter receivables control. Up-to-the-minute management reports that pinpoint overdue accounts can help you identify outstanding balances and improve your cash flow.

You can also use your IBM Personal Computer and IBM Personal Computer XT to control the cash your business pays out. Let it help you automate key payables functions, take maximum advantage of discounts, and analyze vendor performance.

You may not want a profit and loss statement every day, but with your IBM Personal Computer and IBM Personal Computer XT you can get one whenever it's needed. Plus, a variety of timely financial reports which can give you a clear picture of where your business is...and where it's going.

Use your IBM Personal Computer and IBM Personal Computer XT to plan for growth, budget expenses, analyze sales, schedule resources and create spread sheets. In fact, use it anywhere you want to cut costs, reduce paperwork and improve productivity in your business.

There is also a program that can transform your IBM Personal Computer and IBM Personal Computer XT into a word processor.

Your educational assistant

The IBM Personal Computer and IBM Personal Computer XT can be used as your "educational assistant" in a variety of ways.

This personal computer interacts with you, one-to-one, in a "user-friendly" way. It provides the motivational feedback often necessary for expanding vocabulary, or improving essential skills in mathematics and other subjects which require drill and practice.

For problem solving, the IBM Personal Computer and IBM Personal Computer XT can be programmed to simulate conditions almost impossible to duplicate in an educational setting. It is ideal for building "what if" models for a whole range of situations, and for getting answers to problems with computer speed and precision.

Easy does it

You can place your IBM Personal Computer and IBM Personal Computer XT just about anywhere - on a table, a desk, or any other convenient work surface. It plugs into a standard earthed outlet and can be ready for use wherever it makes sense for you.

You don't have to be a computer expert to learn how to use it. You, or any member of your family can do it - with just a little time and practice.

IBM is with you every step of the learning process, too. A special set of instructional literature comes with your personal computer, allowing you to get to know your system - at your own pace.

IBM instructional literature is written in your language, not computer jargon. It's designed to help take the mystery out of computing - and make learning simple.

To make learning easier, your IBM Personal Computer and IBM Personal Computer XT can be programmed to produce information in the form of line graphs, bar charts, histograms and curve fits. A colour/graphics option can be used for the presentation and clarification of complex subject matter.

If you are a teacher, the IBM Personal Computer and IBM Personal Computer XT can assist you with classroom preparation and instruction, as well as with keeping track of grades on quizzes and exams.

Together, you and your IBM Personal Computer and IBM Personal Computer XT make a powerful team. You'll find few other personal computers which offer as many advanced capabilities.

DOT MATRIX PRINTER

The Apple Dot Matrix Printer is precision-engineered for high reliability and print quality. It provides upper and lowercase text at up to 120 characters per second, 136 characters per line; and high resolution graphics printed at 160 x 144 dots per square inch. The Apple Dot Matrix Printer can turn your Apple computer system into a high performance word processing and graphics centre.

The Apple Printer is an enhanced version of the 9in C-Itah.

Benefits

The Apple Dot Matrix Printer ...

- increases office productivity, giving you reliable correspondence – quality printouts at 120 characters per second, bidirectional printing ...
- offers you printing flexibility, thanks to its high resolution graphics mode, and its high quality print with seven unique alphabets, eight character sizes, and proportional spacing ...
- offers you high reliability, because of its heavy-duty construction, highly dependable print mechanism, and a print head life of over 100 million characters ...
- may be used in home or office environment, because of its quiet operation and compact design ...
- adapts to your specific printing demands, letting you create special character fonts for your own custom character generator ...
- provides years of trouble-free operation, because it is backed by Apple's service and support network. Apple and The Computer Shop's Service Centres.

The Apple DMP 120cps 9" printer including graphics interface and cable is on special during the month of November from The Computer Shop, at only $795.

Key results of "Computers in Australia – Part 3 – from Computer Usage to Commercial Success"

- An analysis of the profitability and performance of major companies in the "Top 100" companies in Australia, shows that there is a strong correlation between computer usage and profit. Other performance parameters have also been studied re profits, manpower and computer usage:
- Of these, there is an indication that companies which have been able to raise their computer usage per employee above the average of that for their individual industry sector – have had a better chance of improving their position in the list of profit ratings of the "Top 100" companies.
- The penetration of computers into different various industry sectors, clearly shows that the manufacturing sector has been one of the last penetrated and this probably contributes to some of the present – problems in Australia's competitiveness.
- There is a strong case for changing this situation of low-level penetration into manufacturing, to preserve existing industries with the aid of new computer-based technology, quite apart from initiating high technology manufacturing of computer equipment.
- Australia at present is at a disadvantage in terms of our imports of high value-added products like computers which are paid for from exports of low value-added produce. The situation is reviewed by an EEC consulting economist. It points to the need for a better and more competitive manufacturing base in Australia. Although computer industries need new equipment with high technology to avoid greater unemployment in the longer term.
- There is a wide range in the percentage usage of computers for assisting management in decision making, as distinct from routine data processing. Some organisations in industries with good applications do not appear to use computers to the extent which would seem beneficial in decision making.
- In the informative historical section of the book, we note that the world's fourth (possibly the third) digital computer was designed and built in Australia by Dr Trevor Pearcey at CSIRO in the 1949-1950's. The future scale of importance of computers was not realized at the time (except possibly by IBM) and CSIRO's major research efforts went into other areas such as rain-making and radio astronomy which appeared more promising for Australia.

This book was prepared by the Foundation For Australian Resources.

ADMINISTRATIVE

Software and Manuals

In this preview issues of "Education News" we are only very briefly touching on the subject of Computers in Administration and in School Libraries. Instead we are going to recommend a couple of excellent manuals for you to read during the summer holidays. We are briefly commenting on the most popular software packages purchased for school administration. If you are not already familiar with this software we recommend you to come to our showroom/workshop and browse, or better still, attend a couple of our one day classes during January. It will be time well spent that you won't regret.

Software Buyer's Guide produced by Imagineering

Imagineering is Australia's largest software importing company, and their range of software is described in this new buyer's guide.

If you are considering your first computer purchase, we recommend that you find the programs you want and then buy the computer that runs the largest number of them. A computer without programs is about as useful as a tape deck without cassettes.

All programs in the Software Guide are available from The Computer Shop. As we recommend a copy of this excellent Software Guide to all schools, universities and offices, we are distributing it at a cost price of $5.95.

Microcomputers for school management

This manual has been written by Jan Smith and Bill Hartley from Castle Hill High School in NSW, and is of interest to all schools using microcomputers for administration purposes. Although the applications described are related to the Apple II, other computers of similar capacity and with similar software can be used. The manual consists of 58 pages packed with report layouts and explanations on student databases, student reports, teacher timetables, computerised inventory etc. Software packages used include: Zardax Word-Processor, PFS Filing and Report, and The General Manager. Cost $7.50 from The Computer Shop.

Zardax Word-Processor

Zardax, probably the most powerful Apple DOS word processor, is we guess, the most successful Australian software package ever produced. The people at Computer Solutions in Brisbane have a feel for what is necessary and convenient in a word processor. The program is loaded with "extras" but the most notable feature is its simplicity. It takes very little time to learn Zardax, and once you've learned it the program's menu organisation quickly refreshes your memory every time you return to use it.

Zardax, The Computer Shop's No. 1 selling program retails at $324.00 and is available from The Computer Shop for $250.00.

The General Manager

Designed to be the most user orientated data-base program for the Apple II. Generates standard text files for your other programs to use. A fully interactive data base. Information from one screen may be used as part of another screen, or used to make comparisons.

The General Manager moulds itself to your operation and gives information quickly and in almost any form you want.

The General Manager is available from The Computer Shop for $290.00.

PFS File

The Personal Filing System is an emulation of a card index system. The program is a well designed, easy to use information retrieval system based on information entered and stored on screen pages. The program is very popular with users for its simplicity and power. For Apple and IBM PC.

PFS Report

The reporting module for PFS which produces formatted reports from PFS files. It will perform calculations and sort on the results, and calculate sub-totals, grand total and balances. Report specifications can be saved for use again. Available for the Apple and IBM PC.

PFS Graph

This new product will work alone or interface with PFS databases and VisiCalc files. PFS Graph will produce colour bar, line and pie charts, merging data from several sources. Available for Apple and IBM PC. PFS FILE, REPORT AND GRAPH are $165.00 each at The Computer Shop.

Home Acccountant

This package allows you to:

- maintain up to 100 budget categories;
- keep track of up to five cheque book systems and maintain separate cash balances for five cash accounts and all credit cards;
- print cheques;
- print income and expense summaries;
- do bank reconciliations and much more.

Although written in the USA this package has been modified for Australian standards (eg date sequence and postcode).

The Home Accountant costs $95.00 at The Computer Shop.

Visicalc

It takes the work out of working with numbers. The VisiCalc program is the powerful "electronic worksheet" that replaces paper, pencils and calculator to help you solve number problems. Whether you're working with investments, cash flow, inventory, cost estimates, budgets, plans – nearly anything numerical, the VisiCalc program can help you work better, smarter, and faster.

VisiCalc is available from The Computer Shop for $379.00.

CDEX—Training for Visi©clc

Self-contained Apple assisted training program and reference guide for the No. 1 electronic spreadsheet. User-selectable information. Retails at $49.95 – supplied free of charge with the purchase of VisiCalc from The Computer Shop.

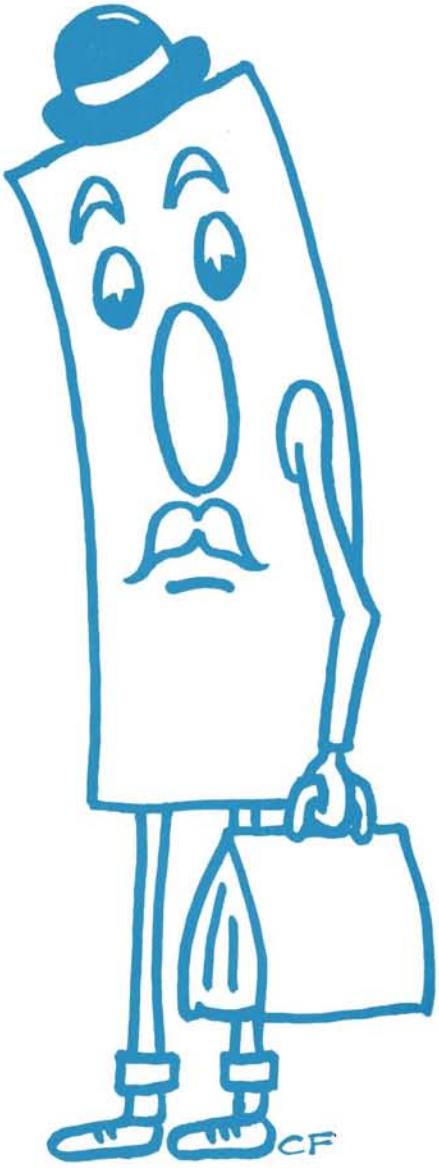
Multiplan

Multiplan is another interactive electronic worksheet and preferred by some over VisiCalc. If you wish to study both packages, we recommend our one-day training course for $39.00. Multiplan is available from The Computer Shop for $350.00.

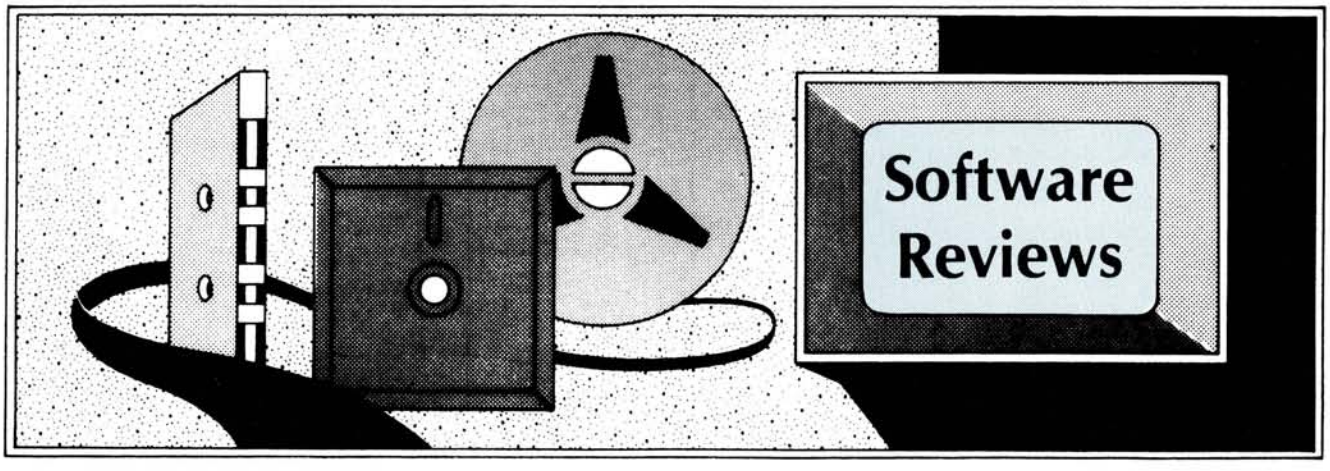
Microcomputers and school libraries

Perhaps the single greatest virtue of a microcomputer is its versatility – the same quality which characterises a good library media centre. It's no surprise, then, that more and more computes are cropping up in school libraries across the country – or that progressive librarians are finding a great many new uses for them. The applications generally seem to fall into one of two catagories:

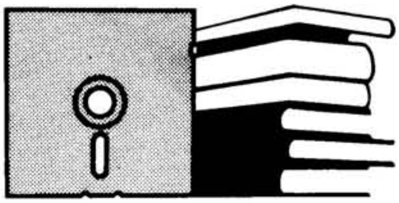
- The computer as part of the library's educational media; or
- The computer as a library management tool.



In our special report on computers and the school library in our February '84 issue of "Education News", we will provide a guide to software that can handle library management functions.



TCS SOFTWARE LIBRARY



The Computer Shop's Education Specialist team (including four school teachers) maintains a library or around 2000 public domain programs.

Membership to the TCS-Software-Library gives members access to 1000 educational programs written primarily by teachers in Australia. Another 1000+ programs have been added from similar libraries in Europe ad America, including the latest programs from the Apple User Club in London.

We are continually looking for new software. New programs are reviewed for their educational merit and programming soundness. Accepted programs are edited for spelling errors, inaccurate or incomplete instructions, errors in factual content, programming errors and other problems.

Finished programs go onto disks, each of which contains from 5-30 programs on various subjects for various school years.

We make every endeavour to ensure that programs submitted are truly original creations. Should it be discovered that a donation is an adaption of another program or comes from another publication, we must request the original author's permission to publish the program.

A **catalogue** is available to members, listing programs by subject and school year. Anyone using a public domain program should ensure that the original author's name, address and comments etc remain intact with the program.

Some of this software can be the base on which to build both your school's computer program and a bank of educational programs for your family.

The expending use of the computer as an educational tool owes its momentum to the enthusiasm of involved teachers, parents and students who have donated their software. This coupled with our enthusiasm to edit, document and distribute this software as a non-profit making activity, gives the computer novice a starting point, and the experienced computer user fresh ideas on how to develop more interesting and sophisticated programs to challenge and stimulate even the expert.

How to join

- Membership is available to Schools/Colleges/Universities and The Computer Shop clientele for a fee of $49.00 per annum.
- On receipt of an official school order form, or the coupon below coupled with a cheque, you will receive a catalogue listing programs by subject and school year.
- As a member you can order programs from the catalogue by sending in a school order form. We will invoice:

$4.00 for the cost of a diskette
$1.00 for copying a diskette
$2.00 for postage and handling
$5.00 for a plastic library case to store 10 diskettes.

- As a member you are free to come to our workshop and copy programs at no choice.

APPLICATION FOR MEMBERSHIP TO THE TCS-SOFTWARE-LIBRARY

School/College/University:	**The Computer Shop Clientele**
Name	Name . . . .
Address	Address . . . .
. . . . Postcode . . .	. . . . Postcode . . .
Tel . . . . STD(. . . .)	Tel . . . . STD (. . . .)
Principal's Name	Apple Serial No . . . .
Date	Date Purchased from TCS . . . .
Signature	Signature . . . .
School Stamp	
Find enclosed: Office School Order No:	Find enclosed: Cheque/ Money Order for $49.00 . . . . . .

What is MECC?

MECC stands for Minnesota Educational Computing Consortium. The organisation was established in 1973 to assist schools and colleges in implementing educational computing. In the beginning, they supported timesharing users. In 1978 they began to support microcomputer users and produce software for micros. The software is written for use on the APPLE. Recently ATARI has been supported and material will soon be available for use on the IBM PC.

What does MECC produce?

MECC courseware is primarily designed as supplemental material for use by teachers or parents. They produce diskettes for use from preschool to adult level. The versatility of the material allows teachers and parents to fit computer activities into the curriculum where it is most appropriate. It can be used individually or in groups. Many of the programs are suitable for use with an entire class and large projection TV. The programs provide simulations and tutorials as well as drill activities.

MECC produces software for use in mathematics, language arts, science, social studies, computer literacy, computer science, art, business education, health, home economics, industrial arts, music and special education. There are also utilities for school and teacher use. The teacher utilties can save many hours of preparation time. The puzzle, Find The Computer Words, at the end of this article was produced with Elementary Volume 2. There is also some excellent material for use in in-services.

All MECC courseware products

Continued on next page ►

Keyboard Skills and WP — part of the curriculum

Keyboard skills makes working with the computer less tedious and more enjoyable. Students need to develop keyboard knowledge and skills. It is essential, for efficient use of the computer, that students know where the keys are on the keyboard, understand what each key does, and can quickly use all of the keys.

HOW CAN YOU HELP YOUR STUDENTS TO DEVELOP THESE SKILLS?

Turn your notice board into a large keyboard. Collect small square cardboard boxes (hamburger cartons from fast food restaurants work well) and old shoe boxes. Each carton represents a computer key. Use the shoe boxes for the rectangular keys. The top of each box is covered with card. They can be colour coded, blue for number keys, pink for letter keys, red for function keys. Then they are labelled with a black texta. The cartons are arranged according to keyboard format and glued onto butcher paper. The butcher paper is stapled to the notice board. This giant keyboard may not actually input data, but it's great for introducing key arrangement to students. To build up the keyboard you can have individual students go to the butcher paper and put their key where it goes. An A4 sheet with a keyboard reproduced on it could be helpful at this time.

> *"Learning to type can be a lot of fun"*

Some programs require students to use letter keys to move the cursor. This can be very cumbersome for primary students. You can save them a lot of time and frustration by taping directional arrows on the appropriate keys. Of course, if you are using the Apple //e you have cursor movement arrows but it is sometimes easier for children to use the I, J, K, M keys because they have positional correspondence with the movement. Just draw arrows on small bits of masking tape or small labels and stick on.

To help students develop keyboard

To help students develop keyboard skills, ask parents, friends, and neighbours to donate old typewriters to put in your classroom. When students have finished all their work, have them draw an exact replica of the computer keyboard.

Of the top 10 educational programs on the Softsel Corporations's most recent bestseller list, three have been typing programs. Due to the increased use of computers and the introduction of word processing in elementary schools, typing instruction is filtering down from high school to the lower primary classes as a formal part of the curriculum.

THE COMPUTER SHOP, The Education Specialists, recommend Type Attack and MasterType as two of the best commercially available pieces of software.

Learning to type can be a lot of fun.

If there is a place in your classroom for software for typing practice and your students enjoy arcadestyle software, MasterType and Type Attack may be what you need. Both demonstrate how high resolution, eye-catching graphics help keep players focused on the screen - not on the keyboard. The programs build on game skills that many of the least computer literate players may already have, while familiarising them with a computer keyboard.

Type Attack: Type Attack consists of 99 lessons. The first 39 provide practice in basic typing skills in a sequential manner, testing first single characters and then those same characters in combination. Numbers 40 through 99 are available for "creating-your-own" lessons following the same format of character and word attacks. Type Attack is menu-driven, with options for choosing to play or create

MECC CONT'D

Continued from previous page

include carefully designed support manuals to help you to effectively use the instructional computing materials in education. The support manuals contain valuable information that assists in preparing students to use the computer programs, gives ideas for using the programs individually or with groups, suggests follow-up activities, and provides background information on the program's design. There are suggested grade levels for each diskette to assist in determining the appropriateness of the courseware for your needs.

MECC also publishes a number of excellent books to help you teach with and about microcomputers. MECC courseware and print materials will assist you in using your microcomputer to achieve your educational aims. The prices are low enough not to ruin your budget.

How can I see the MECC products?

Visit THE COMPUTER SHOP, The Educational Specialists, for a demonstration of these excellent materials.

FIND THE COMPUTER WORDS

```
D H O W S E V M K G E P S A A U A B X Q
G W A E C A A C G V V E G R A P H I C S
H S T R V S I P M G E K X M B K M S I W
D Y D F D T O R D M W T C D N I V M R G
B Z X X S   D F A B U G T S B C R A M L
T J C   J   C R T P P D R D N R X X V X
I H Y J K D G O M W D T L W E O L T F M
E O E S D O J O P X A H U T L P F F O W
J O I C R F C B F Y V R E K M R M L K D
M D T P O S Y N T A X   E R R O R O P G
H E J K B M B L I S T L C D R C W P C J
I A C K E K P I I L E B A H L E W P G W
P N R C X Y G U T O K O C A U S M Y J E
G I G D N V B F T S L I P N Z S E   W K
W O R D   P R O C E S S I N G O B D T X
P R I N T D G X A A R C L M D R N I E H
U H A N W N I E B R F S P X R U W S L W
G P M I W T W S S L D G H H R Z K K P R
X Y X T R J H G K Y K X M O N I T O R P
P R I N T E R O T S R E M P P H J V M K
```

There are 30 words here - can you find them?

Here are the words to look for:

Basic	Bits
Bug	Bytes
Computer	CTRL
Disk Drive	Floppy Disk
Goto	Graphics
Hard Copy	Hard Disks
Joy Stick	Keyboards
List	Load
MECC	Microprocessor
Monitor	Pal
Print	Printer
Programs	Ram
Rom	Run
Software	Syntax Error

The Computer Shop Word Processing

any lessons and to select the speed at which the letters attack. A lesson begins with a "character attack". Letters fall invader-style from the top of the screen, in three waves. Each wave consists of eight letters in each column. For instance, the first lesson is on the left hand home keys and a column will include the letters a, s, d, and f.

To stop the attacking characters, you must type in a letter from the bottom of a column (the only ones vulnerable) to erase it from the screen. A player begins the lesson with 100 units of energy and with every error made and each time a letter hits the bottom, some units are lost. The game ends if all your energy is used up or if you manage to eliminate all three character wave. You receive a character trophy for each wave successfully eliminated.

During the lesson, your energy supply and typing speed are monitored and displayed on either side of the screen. At the end of the game, points scored for successfully destroying letters and words are combined with bonus points computed by multiplying your typing speed by the speed level chosen for that lesson. A high score will earn you entry into the Type Attack Hall of Fame.

MasterType: MasterType is a powerful wizard who uses a laser-like force to defend your Command Ship, which is stationed at the centre of the screen. At the beginning of combat enemy words stations will appear in the far corners of the screen and immediately begin hurling missiles at your ship. You must destroy the words before they destroy you.

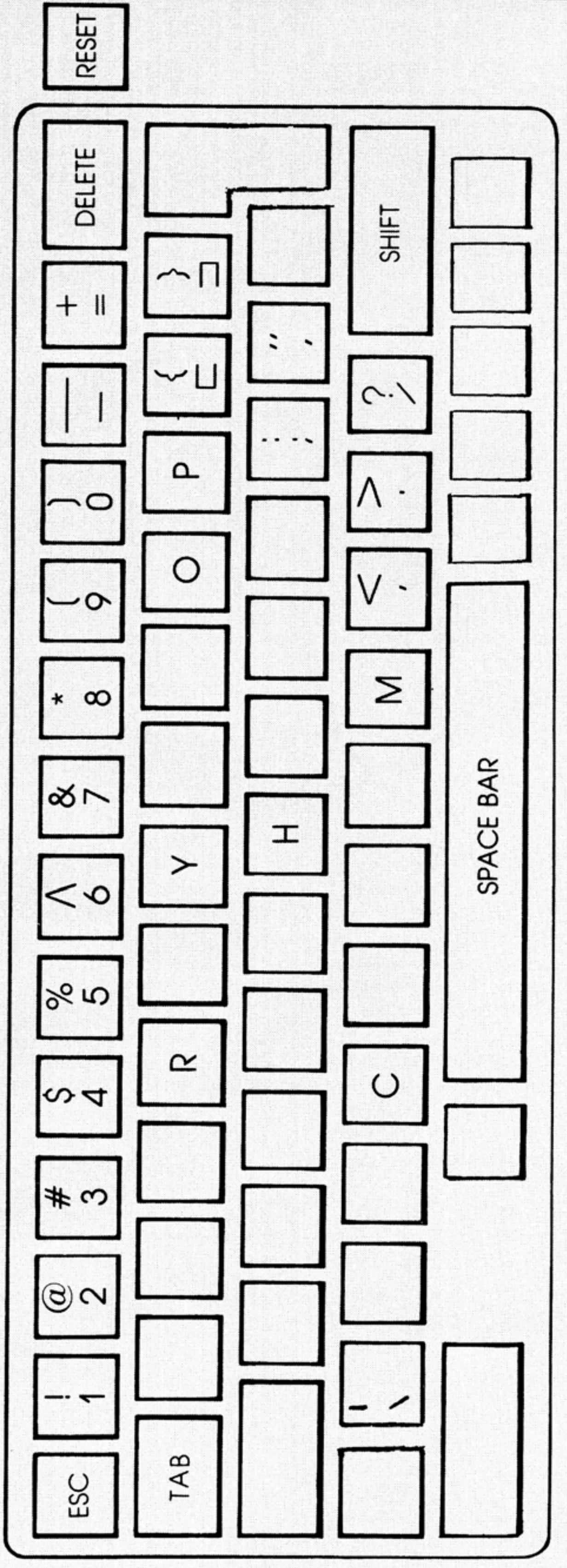
You direct the MasterType's force by typing one of the four words that appear in the corners. Each time you successfully type a word, the MasterType zaps a blast of energy toward the word, exploding any missile in its path. You must destroy the words before they destroy your Command Ship.

The program has 18 lessons and an option which lets you create your own lessons. You can play the game at a slow speed, plan an easy version of the game in which each word is only one letter long, call up a more extensive menu so you can change the game speed, call up a new lesson or switch to upper/lower case and back. Each lesson also has a short demonstration. At the end of each lesson your typing speed in the final round and the average typing speed is displayed.

With both Type Attack and MasterType, what could be a tedious activity – *learning to touch type quickly and accurately – can be a lot of fun.* Using the game format, the program combine a variety of tasks, excellent graphics and satisfying signals of progress.

LEARN THE KEYBOARD

Fill in the missing letters in the keyboard.
If you need help, look at the keyboard on a real computer.



Eight easy steps to get you started with word processing in the classroom

STEP ONE — TEACHERS FIRST

Use the step by step manuals supplied with Bank Street Writer or Word Handler II to learn thoroughly the ins and outs of word processing. When you get to a stage when writing a letter with the word processor becomes easier than doing it on paper, you are ready for step two.

STEP TWO — MORE REFERENCE TOOLS

Prepare a colourful poster listing all the major editing and formatting commands. You might also want to simplify and condense the user's manual for students to use as a reference tool.

STEP THREE — TRAINING STUDENT LEADERS

Select a core group of four of five students to serve as classroom leaders. These students will be your disciples when the going gets rough.

STEP FOUR — LESSON ONE

By pairing leaders and beginners, students should be able to work through the tutorial disks supplied with both Bank Street Writer and Word. Handler II. By the end of the first week they should easily be able to save a short assignment on diskette without teacher supervision. It is a good idea for each student to save text under their own name so you can quickly scan each student's file at the end of the week, and so that students can remember their file names easily.

STEP FIVE — LESSON TWO

Devote the second week to teaching students all major editing commands, inserting, deleting, changing text and moving text. By the end of the week students should be able to load a text file, do all corrections and re-save the file under their names without consulting you or the leaders.

STEP SIX — THE FIRST ASSIGNMENT

Whatever writing project you assign to your students, writing the first draft will probably be the most time-consuming and hardest part. You could have the students work in pairs at the computer with one student reading the text aloud, suggesting revisions as the article is typed. Then they change places so they both have a go at typing their assignment.

STEP SEVEN — REVIEWING THE PAPERS

If enough computers are available, you can work directly with students when they load their files. If it is easier, have them give you a hardcopy and make the corrections at your convenience.

STEP EIGHT — ODDS AND ENDS

When all assignments have been revised, have students leaders print out two copies of every paper. Give each student one copy of their paper to take home. Keep another one for display, possibly in a student assignment book.

Getting parents involved in word processing can be a great help. Parents might volunteer as proofreaders, working with students either after school or on weekends.

WRITING SKILLS AND WP

Word Processing: Part of a primary schools writing program.

Although programming is still the official domain of the microcomputer, an increase in use in other areas, particularly word processing is emerging. A study of high school purchase plans in the US showed Word Processing packages to be the top priority for software acquisition followed by record keeping and administration, programming tools, accounting and business systems, maths programs, and simulations. One of the keys to improving students' writing is to encourage students to write more. A word processor appropriate for students is motivating, and reduces the drudgery associated with editing and recopying.

A word processor is a machine that allows correction of the typed words or text before they are printed. This gives the user more freedom to be creative, to type as quickly as possible, and correct spelling mistakes and add punctuation later.

Within a teaching environment, a common practice is to encourage students to draft out ideas, embellish headings and notes, and then redraft the original. Students can see the benefits of redrafting, but don't like the drudgery of rewriting something two or more times. A word processor can be invaluable in these circumstances, giving the students a powerful editing tool which responds quickly to commands, allows addition and deletion of words, sentences and paragraphs, and automatically takes care of page formatting and numbering.

The point of introduction should be at a level where children are required to produce short stories or essays that demand some preparation i.e. at about grades 4 or 5. Students spend less time worrying about mistakes and more time concentrating on the content. They tend to write more and feel free to revise and experiment. As a result, they soon recognise their own writing flaws and produce better sentences.

THREE COMPUTER TOOLS FOR STUDENTS

1. WORD HANDLER

Word Handler is a simple word processing package that has a wide range of easily managed functions, such as being able to print for folded sheet requirements and being able to mirror image margins, ideal for situations when in-house printing is required. For a school it would easily print class or school magazines using this function.

The Word Handler's strong points are: direct to disk editing which allows documents larger than memory; simplicity of operation and clarity of display; format including upper and lower case; underlining, bold face, and unlimited tabs, all on the screen. All usual functions are simple to use.

Word Handler can operate with a modified or unmodified keyboard to achieve upper and lower case letters. It can manage up to eight disk drives.

The manual is in two parts, a tutorial and a technical guide. Word Handler retails for $95.00 but is available from The Computer Shop for $89.00.

Word Handler is particularly suitable for secondary and tertiary students, and can be purchased as a total package together with Spell Handler and List Handler for $239.00.

2. SPELL HANDLER

The Spell Handler is a 90,000 word dictionary that will check for and mark spelling and typographical errors in a Word Handler document. It also allows you to create custom dictionaries that include your own words. The program will scan your document for errors at a rate of 10 words per second.

Spell Handler retails at $125.00 but is available from the Computer Shop for $109.00.

3. LIST HANDLER

List Handler is either a stand alone package or one that can be linked with Word Handler. By comparison with other data-base-type packages available, List Handler would seem to be a long way out in front.

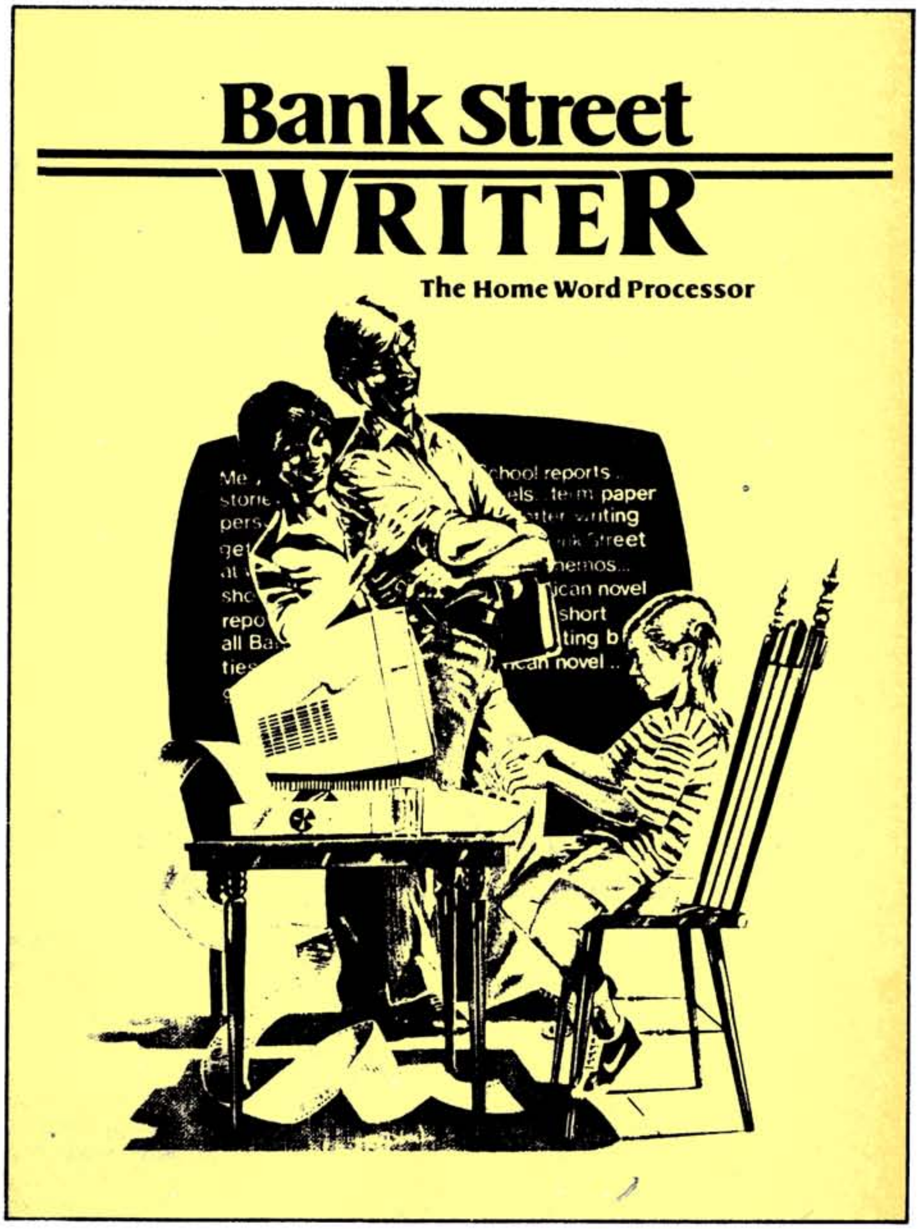
It allows the creation of information lists (or files) that are made up of records, and can store up to 3000 records on one floppy disk. The maximum record size is 4000 characters, when this occurs List Handler has the facility of extending the list onto additional disks. As with Word Handler up to eight drives can be on line together, giving a maximum system size of about 24,000 records.

The manual acts as a step through tutorial using the material on the disks supplied and user developed material.

The strengths of List Handler come from: its ability to handle huge amounts of data; its very fast retrieval speed in on-screen searching; its ability to use upper and lower case letters and its ability to be intergrated with, or to integrate other software packages, e.g. word processors and electronic spreadsheets.

List Handler would seem to provide a challenge to users as its range of use is dependent only on the imagination of the user. In the school situation it can be used to create lists, in administration for general record keeping, identifying students taking certain subject combinations, and identifying children in special groups.

List Handler is an exciting package that provides a challenge to both users and competitors. List Handler retails for $80 and is available from The Computer Shop for $69.



Bank Street Writer for primary and lower secondary word processing

The Bank Street Writer is a complete word processing package specifically designed for classroom use. With this program, even the most inexperienced students and teachers should be creating, editing, printing and storing text in no time at all. This text editing program is particularly suitable for primary school writing programs.

The BSW is organised like a three-page menu. The first page is the writing or text-entering page. The user begins here. The words ENTER TEXT are always highlighted at the top of the page. The first page allows the word processor to be used much as a typewriter. The move the EDIT page is made by pressing the ESQ (escape) key, with the words WRITE OR CORRECT highlighted at the top of the screen on this page.

Typically word processors have been adult oriented. They require days to learn to operate, thus they are not accessible to students. In contrast, the BSW requires only one to two hours to learn to use. No knowledge of programming or maths is necessary to use it.

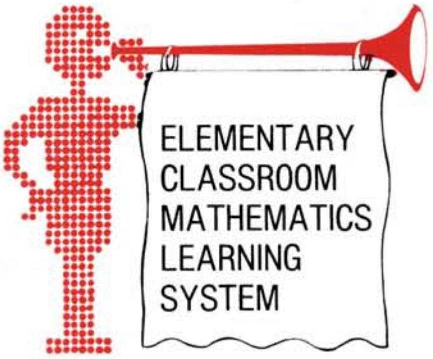
One of the outstanding features of this package is that it provides extensive teacher guidance. The documentation includes an introduction to word processing and how it is used, detailed explanations of the program functions, and suggested activities for using the Bank Street Writer in a writing program. The user manual is also a helpful reference tool for students.

Every feature of the Bank Street Writer is geared for "ease of use". User prompts are clear and upper and lower case screen display makes text reading easy. The ability to print out a document in draft form, without setting up the printer parameters, is a real time saver.

The Bank Street Writer uses any standard printer and requires no special set up.

Fully tested with young writers at Bank Street College, THE BANK STREET WRITER is ready to go to work at your side, turning repetitious chores into happy computer experiences for your students ... and improving their writing.

The Bank Street Writer retails at $98.95 and is available from The Computer Shop for $87.00.



"Classroom teachers would be hard pressed to find another program on the educational software market that offers as comparable diagnostic prescriptive package" – good words from Infoworld's Software Review, May 17, 1982.

Housed within each package binder is a simple and comprehensive teaching guide, practice exercises, corrective feedback and a disk.

For each lesson there are two modes: tutorial plus drill and practice. Practice problems follow each tutorial episode.

Throughout the practice exercises, whenever an error is made, instructional hints are provided. These are based upon the type of error made and the tutorial approach employed.

The Elementary Math series consists of the following packages.

Whole Numbers: Addition; Subtraction; Multiplication; Division. Fractions/Decimals; Addition and subtraction of fractions; Multiplications and division of fractions; Meaning/equivalence/order of fractions; Decimals.

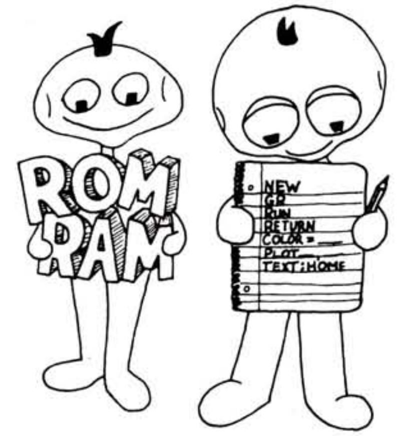
Math Games: To provide additional practice in all of the above math areas, a separate GAMES disk is available.

These highly graphic programs will improve the student's abilities to add, subtract, multiply, divide, and handle fractions.

"These packages belong in every elementary software collection".

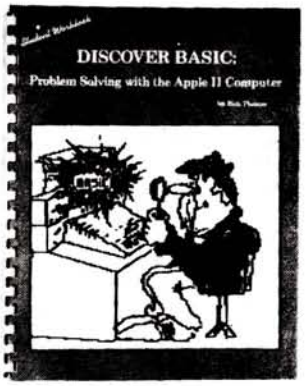
The Elementary Math Packages $49.95 each. Math Games $29.95 each.

STERLING SWIFT



Computer Literacy: Problem-solving with computers

This clear and readable book explains current and potential uses of computers in solving problems in many areas. It ranges from the history of computing and the kinds of problems early computing pioneers tried to solve, up to the applications of computer technology and the effects that technology is having upon our culture, society, economy, politics and the individual citizen. Special attention is given to computer related occupations and their qualifications. Numerous photographs, charts, tables and graphics illustrate and clarify the concepts discussed in this text. Computer related experience not necessary. Best suited for years 9-12.



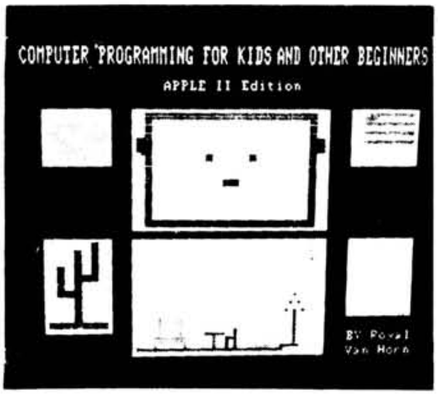
DISCOVER BASIC:
Problem Solving with the Apple II Computer

DISCOVER BASIC!

Do you have the task of teaching students to program in BASIC? This is just the teaching aid you need. DISCOVER BASIC uses a problem solving approach to learning to program. Students are presented with material in an environment that allows them to investigate, make and test conjectures and arrive at their own conclusions.

Learning in this manner has been shown to enhance retention and improve the ability to apply what is learned. It builds confidence and fosters a positive attitude about learning. DISCOVER BASIC consists of a demonstration disk, a disk of sample solutions to student programming problems and an excellent manual which parallels the student work books unit by unit. Learning basic couldn't be made simpler.

While supplies last, you can get all this for $99 including five student workbooks. (Suggested Australian retail price $124.70).

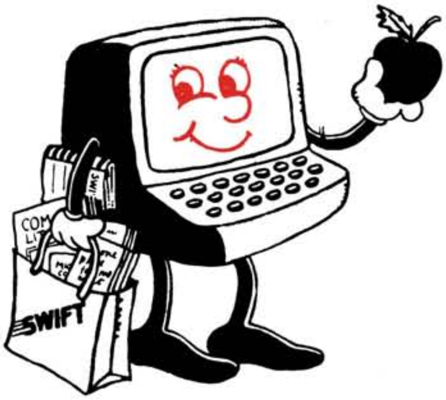


COMPUTER PROGRAMMING FOR KIDS AND OTHER BEGINNERS
APPLE II Edition
BY Royal Van Horn

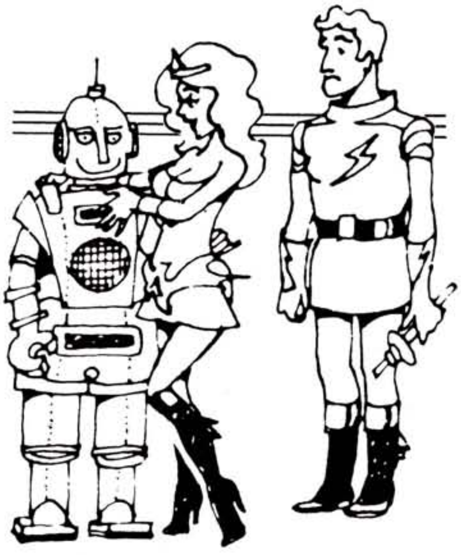
Computer programming for kids and other beginners

This wonderful book is dedicated to providing the best possible material for teaching kids and other beginners to program and otherwise use microcomputers.

An introduction to graphics at an early stage of the book motivates students to learn. Good practice problems, exercises and experimental type questions are included. Best suited for 3rd and 4th graders.



DEVELOPMENTAL LEARNING MATERIAL SOFT-GOODS



Developmental Learning Material Softgoods are academic skill builders in maths and in language arts. Alien Addition, Minus Mission, Verb Viper, Wordman are all examples of the program titles, all of which are a pun on the arcade-game format, which motivates students to practice basic facts in an exciting way.

The action in each program is fast and requires students to make a high number of responses in a short period of time. The difficulty of the games increases so that even the best Maths and English student will be challenged. In each of the games the object is to destroy the problem before being destroyed by the problem.

The DLM Soft-goods for Maths and Language Arts are all available in classroom and home versions at The Computer Shop for $49.95 per package.

FIVE PRIMARY SCHOOL PROGRAMS

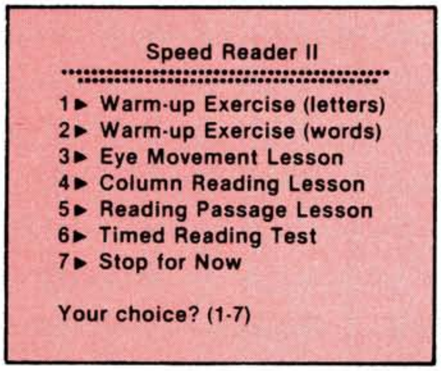
Speed Reader II

EDUCATIONAL SOFTWARE THAT WORKS!

SPEED READER II FOR READING AND COMPREHENSION

With the amount of reading we do in our society, the ability to read quickly is a must! Most people use the wrong set of habits to read with. SPEED READER II is a six part reading program designed to help you improve your reading skills and change your habits. It helps you become a faster, more efficient reader, enjoying reading more. Besides charting reading speed it has passages with questions to check comprehension. The package also contains an easy to use editor to create new material. The manual is user friendly. There are data disks catering for grades 4 to University. An excellent investment of $79.95 with two disks and manual (suggested retail price of $101.00). There are over 35 stories with eight comprehension questions at the end of each story.

Visit The Computer Shop for a demonstration.



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Speed Reader II
**************************************
1► Warm-up Exercise (letters)
2► Warm-up Exercise (words)
3► Eye Movement Lesson
4► Column Reading Lesson
5► Reading Passage Lesson
6► Timed Reading Test
7► Stop for Now

Your choice? (1-7)
```

Word Attack!

All people have two vocabularies. Ibe is your receptive vocabulary, containing words you recognise when you read or listen. Your other vocabulary is your expressive vocabulary containing the words you use when you speak or write. WORD ATTACK is designed to be a tool to assist you in building your receptive vocabulary. It has nine levels from grades 4 to adult. It makes learning new words fun and easy. There is also an editor featurte which allows you to enter your own word lists. The manual is easy to use and walks you through all the features of the program. Suggested retail price is $75.00. The Computer Shop price is $59.95 (two disks and manual).

Toddlers' Tutor

Teach your child the alphabet and numbers while entering the word of computers! With exacting blends of pictures, letters and numbers Toddler's Tutor will encourage your child to learn the alphabet and numbers.

Dynamic use of graphics and colour combine to hold the childs attention while they learn.

Each letter is displayed in a big, bold, and colourful style. A picture unfolds that gives an example of the word's use. These large colourful letters are constructed on the screen, either alphabetically or at random to show how letters are made. Toddler's Tutor is available from The Computer Shop for $49.

Math Blaster

Maths Blaster contains over 600 problems in addition, subtraction, multiplication, division, fractions and decimals for students aged six to 12. The problems are grouped in families of facts and can be used with four different learning activities, including a fast-action arcade game. The program also has an easy to use editor so that parents and teachers can enter additional sets of problems. Math Blaster is available from The Computer Shop for $69.

E-Z Learner

E-Z Learner – a simple menu-driven program creates, stores, and reviews questions and answers on the subject of your choice. The questions and answers can be easily edited, updated, merged or transferred however you wish.

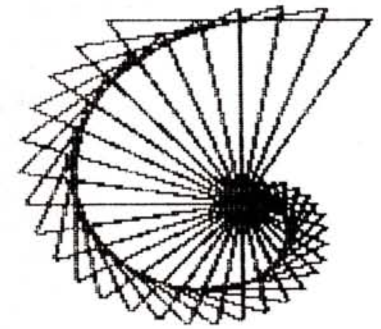
E-Z Learner is ideal for learning large amounts of information. Whether you're studying law, medicine, real estate, history, Spanish or Swahili: E-Z Learner can be customised to your needs. Studying several things at once? Each subject can be stored on a separate file, reviewed individually or merged for major exam review.

Challenge yourself. Have E-Z Learner throw questions at you randomly or give the answers to which you must supply the questions. By encouraging quick thinking, E-Z Learner ensures that the answers you seek are truly learned, not momentarily memorised.

E-Z Learner's unique save/recall feature is the "bookmark" that allows you to interrupt your study then pick up exactly where you left off.

The Toddlers' Tutor and the E-Z Learner are both available from THE COMPUTER SHOP for $66.

We'll have a close look at more software for the classroom in our February '84 issue of Education News.



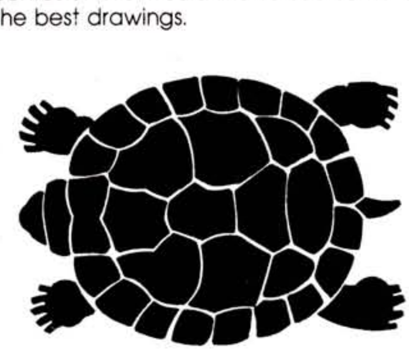
LOGO – A creative turtle and much more

LOGO — A creative turtle and much more

This has been a great year for kids, LOGO and computers in Australia, particularly as a result of last years "Kids Can't Wait", program from Apple. Thousands of kids will have had their first introduction to computers and programming via LOGO. This is a powerful language for kids (and adults, too) to use with computers. We can imagine that a lot of creative programming has taken place and many nice drawings hang on classroom walls. The Turtle did the final job but the student can take the credit.

We are very excited about LOGO as an introduction to powerful ideas expressed through microworld. Can you tell that we have been reading Seymour Papert's book Mindstorm? We feel that the impact of computers in education will be along the lines he explains in his book. It is a great book on learning and how microcomputers can help children learn and therefore help teachers and parents. Another great book to help you get started is *Learning LOGO on the Apple II* by McDougall, Adams and Adams. Copies are available from The Computer Shop. Anne McDougall lectures at Monash University, Melbourne.

Most classroom use of LOGO probably centres around the use of Turtle Graphics. Let us know how you use LOGO in your school or at home. A letter from the children would be very interesting also. Write to tell us what you think of the LOGO language and how you use it. Have any schools run LOGO drawing contests? We would like to see some of the best drawings.



LOGO is a good first language in a computer education program. End the Computer Literacy part of your computer program with an introduction to LOGO. Most students will be successful. The better ones can go on to use the sophisticated features of LOGO. **It is a great language to allow learners to work at their own level. And isn't this something we all strive for?**

Have you heard of TURTLE? If you don't have LOGO you can still provide an environment with some features of turtle graphics, with TURTLE. The students in our classes were very creative in "writing" their names on the screen using TURTLE.

> ...a great language to allow learners to work at their own level.

It looks like there will be a lot of activity next year related to LOGO. Several utilities are available, one supplied by Diana Ryall of Apple and another called Hi. We are sure to see more of these in 1984. We wonder if LOGO will become the basic language of all educational computers. Apple LOGO and books on LOGO are available from The Compuer Shop.

Turtle ideas

Draw an obstical course on a piece of clearsheeting. Tape this to the monitor screen. Students can move the Turtle through the course without striking any objects. You could also draw the fairways and green, to simulate a golf game with the turtle as the ball (ouch!). Who can get to the green in the fewest moves?

Do your students keep journals of their activities with LOGO? Ask your students to record their planning of LOGO activities and the programs they developed. Ask them to include a sketch or a printout of the result of their activity. They can show any new commands used or tricks they used to make the program easier to write. They can then briefly indicate what they will do duri the next session. Looking through the books will help you to gauge the progress of your students and areas of diffifulty that need attention.

Apple LOGO

Apple LOGO is characterised by a rich variety of advanced commands and capabilities, some of which are not found on any of the other LOGO packages. For example a set of procedures can be packaged together and buried (protected from accidental erasure). An error trapping feature lets you change error messages or response. And, because Apple LOGO is strongly oriented towards list processing, all conditional responses must be enclosed by list brackets (for example IF:DISTANCE=O [FORWARD 100 STOP]. The set of list commands is on the whole useful. For instance, the instruction COUNT:ROSTER will give you the number of entries in a particular list and ITEM 6: ROSTER will retrieve the sixth item in the roster list.

Apple LOGO requires two separate commands to define and edit procedures. This allows users to define and edit procedures while the graphics are still on the screen.

One limitation of Apple LOGO is that it is not possible to save a Turtle-drawn graphics picture without shutting down the program.

Apple LOGO is available at The Computer Shop for $255.

Direct Helper

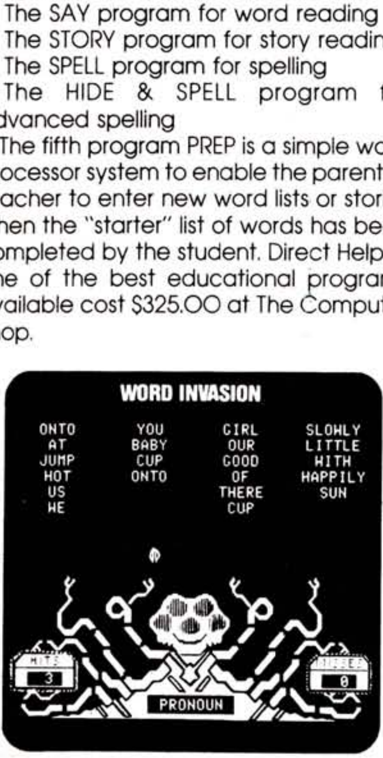
For children with learning problems, micro computers are proving to have advantages over the more orthodox remedial teaching methods. A good example of this is "DIRECT HELPER".

Dr John Pollard, a research scientist, first developed the concept of remedial reading on computer in an effort to help his dyslexic non-reading 10-year-old son. He found the technique to be very effective in his son's case and as a result set up the "DIRECT HELPER" scheme.

The "DIRECT HELPER" scheme consists of five computer programs and an accompanying "starter" set of graded words for immediate use. Four of the programs are used by the student:

- The SAY program for word reading
- The STORY program for story reading
- The SPELL program for spelling
- The HIDE & SPELL program for advanced spelling

The fifth program PREP is a simple word processor system to enable the parent or teacher to enter new word lists or stories when the "starter" list of words has been completed by the student. Direct Helper, one of the best educational programs available cost $325.00 at The Computer Shop.



PERSONAL COMPUTER GLOSSARY

Most of the computer terms used in this magazine are defined below. Other frequently used computer terms are included as well, so this glossary may help clarify future computer conversations and readings.

Acoustic coupler. A mechanical device that allows a telephone handset to be connected to a modem. The term is sometimes used to refer to the entire modem. See *modem*.

Address. A number that identifies the specific location where a piece of information is stored in the memory of the computer.

Alphanumeric. Characters consisting of letters and numerals, as opposed to special characters. See *special character*.

Application program. Software designed for a specific purpose (such as accounts payable or receivable, payroll, inventory, and so forth).

ASCII. American Standard Code for Information Interchange. Computers use binary numbers to represent letters, numerals, and special characters. The ASCII code specifies which binary number will stand for each character and provides a standard that allows computers from different manufacturers to "talk" to each other.

Assembly languge. A means of communicating with a computer at a low level. Assembly language lies between high-level languages (such as BASIC and Pascal) and machine language (the ones and zeros the computer understands at its most basic level). Programmers use assembly language to make efficient use of memory space and to create a program that runs quickly. See *machine language*.

Backup. An extra copy of information stored on a disk. If the program or other data stored on the first disk becomes damaged, it is still available on the backup copy.

BASIC. Beginner's All-purpose Symbolic Instruction Code. The most used high-level language for small computers.

Binary numbers. A numbering system that uses only ones and zeroes. It is an efficient way of storing information in a computer because the hundreds of thousands of microscopic switches in a computer can only be on (1) or off (O).

Bit. A binary digit (1 or 0), the smallest item of useful information that a computer can handle.

Boot. To "start up" a program. See *bootstrap.*

Bootstrap. A piece of software, usually stored permanently in memory, that activates other pieces of software in order to bring the computer from "off" into readiness for use.

Bps. Bits per second. A measure of data-transmission speed showing the number of bits of information that pass a given point in one second.

Bubble memory. A new method of storing information for a computer using microscopic magnetic bubbles. Although the technology was developed almost a decade ago, it is still expensive and not generally available for small computers.

Bug. An error. A hardware bug is a malfunction or design error in the computer or its peripherals. A software bug is a programming error.

Bus. The means used to transfer information from one part of a computer to another.

Byte. A sequence of bits that represents a single character. In most small computers, a byte is eight bits.

CAD/CAM. Computer-Aided Design/Computer-Aided Manufacturing.

CAI. Computer-Aided Instruction. Teaching by means of a computer, normally involving interaction between the student and the computer. The computer informs the student of right and wrong answers as he makes them, and is able to respond to the student's emerging proficiency.

Central processing unit. See *CPU.*

Channel. A path for the transmission of information between two points.

Character. A single letter, number, or other symbol. In a small computer, a character is normally represented by eight bits (one byte).

Chip. A generic term for an integrated circuit (IC), a single package holding hundreds of thousands of microscopic components. The term comes from the slices (chips) of silicon of which they are composed.

Clock. In a small computer, a repeating signal (usually millions of cycles per second) that controls the microprocessor "brain". Each time the clock sends a pulse, the computer performs a single task.

Command. A word or character that causes a computer to do something.

Compiler. A piece of software that takes a series of commands written in a high-level language (easy for people to use) and translates them into a lower-level language more effective for the computer to use.

Computer. Any device that can receive and then follow instructions to manipulate information. In any computer, both the set of instructions and the information on which the instructions operate may be varied from one moment to another. A device whose instructions may not be changed is not a computer. The distinction between a programmable calculator and a computer is that the computer can manipulate text as well as numbers, whereas the calculator can only handle numbers.

Computer network. Two or more connected computers that have the ability to exchange information.

Computer program. A series of commands, instructions, or statements put together in a way that tells a computer to do a specific thing or series of things.

Control characters. Characters or commands obtained by holding down the key marked "CONTROL" while pressing another key on the keyboard.

CP/M. Control Program/Microcomputer. See *operating system.*

CPU. Central Processing Unit, the heart of a computer. The CPU controls all operations of all parts of the computer and does the actual calculations. In personal computers, CPU usually refers to just one of the chips in the machine.

CRT. Cathode-ray tube. A TV-like device used with most small computers to display the information the computer has generated.

Cursor. A position indicator on a CRT. It's normally a flashing or non-flashing square or rectangle.

Data. A general term meaning any and all information, facts, numbers, letters, and symbols which can be acted on or produced by a computer.

Database. A collection of related data that can be retrieved by a computer, such as a mailing list or list of accounts.

Debug. To go through a program to remove mistakes.

Diagnostics. A specialised program that checks the computer for problems and tries to isolate any problems that it finds.

Disassembler. A program that translates a computer's native language into assembly language.

Disk (also diskette). A round piece of magnetic-coated material, either rigid metal or flexible (floppy) plastic, used to store data with greater density, speed, and reliability than is available on cassettes. See *floppy disk.*

Disk drive. A peripheral device that can store and retrieve information on a disk. See *disk.*

Display. A method of representing computer information in visual form. The most common ways of representing computer information are via CRTs and printed paper.

Documentation. (1) The instruction manual for a piece of hardware or software. (2) The process of gathering information while writing a computer program so that others using the program are able to see what was done.

DOS. Disk Operating System. See *operating system.*

Downtime. Any period of time when the computer is not available or not working.

Firmware. A term referring to software that has been permanently placed in memory, usually into ROM (read-only memory).

Floppy disk. A thin, flexible disk of plastic with a magnetic coating used for data storage. The usual disk sizes employed with small computers are 5¼" and 8".

Flowchart. A common method of graphically planning what a piece of software should do before the actual writing process begins, or for describing what it does after it is written.

FORTRAN. FORmula TRANslation. A high-level computer language used primarily for mathematical computations. Although FORTRAN is available for some small computers, it is mainly used with large commercial systems.

Hard copy. A paper printout of information produced by the computer. See *printout.*

Hardware. The physical part of the computer (such as the CRT, CPU, memory) as opposed to software.

Hexadecimal numbers. A number system with the base of 16. It is commonly used by programmers to indicate locations and contents of a computer's memory.

High-level language. Any programming language that allows a person to give instructions to a computer in English-like text rather than in the numerical (binary) code of ones and zeros that the computer understands. BASIC and Pascal are examples of high-level languages.

Impact printer. See *printer.*

Initialise. To prepare a disk so that the computer can later store data on it.

Input. The transfer of data into the computer.

Input/output. Called I/O for short, this is a general term for (1) the external equipment (such as a modem or printer) connected to a computer and (2) the two-way exchange of information that goes on between the computer and that equipment.

Integrated circuit (IC(. Also known as a chip, this is a group of interrelated circuits in a single package. See *chip.*

Interactive. Describes a computer system in which a two-way conversation goes on between the user and the computer.

Interface. A piece of hardware of

software used to connect two devices (computers and peripherals) that cannot be directly hooked together.

Interpreter. A computer program that translates a single line of a high-level language at a time for the computer. Interpreters are more convenient but less efficient than compilers. BASIC is generally used as an interpreter, while FORTRAN is a compiler. See *compiler.*

I/O. See *input/output.*

K. Abreviation for kilobyte, which means one thousand bytes. Actually, a kilobyte contains 1,024 bytes, the "extra" 24 bytes resulting from the computer's binary counting methods. A computer with "32K bytes of memory" has 32 x 1024, or 32,768, bytes of memory. See *byte.*

Kilobyte. See *K.*

Language. A set of conventions (symbols and terms) specifying how to tell a computer what to do.

Letter quality printer. See *printer.*

Line printer. See *printer.*

Load. To put data and/or programs into a computer.

LSI. Large-scale integration.

Machine language. The "native language" of a computer; those fundamental instructions the machine is capable of recognising and executing. The instructions are represented in binary code (ones and zeros).

Memory. Circuitry and devices that hold information in the form of binary ones and zeros that the computer can access. Examples are main memory (integrated circuits), floppy disks, and cassette tape.

Menu. A list of commands that most ready-made programs will display on request.

Microcomputer. A computer based on a microprocessor.

Microprocessor. The central processing unit of a computer (usually in a single integrated circuit) that holds all the elements for manipulating data and performing arithmetic calculations.

MIS. Management information system. The use of a computer for providing information useful to managers (such as inventories, sales, and accounts payable and receivable).

Modem. MOdulator-DEModulator. This device allows a computer to communicate over phone lines and other communication media. It changes the computer's digital information into musical tones (modulating) and from musical tones to digital information (demodulating).

Modulator. See *RF modulator.*

Monitor. A television set, often one that is specially manufactured to be connected to a computer.

Network. An interconnected system of computers and/or terminals. The components do not have to physically close to one another and are often connected by telephone lines.

Node. A station on a network. A node can be a computer or a terminal.

Operating system. "Traffic cop" software that oversees the overall operation of a computer system. This group of programs acts as an intermediary between the hardware and the applications software. Any piece of applications software must be written for a specific operating system – DOS, SOS, CP/M, and so forth.

Output. See *input/output.*

Parallel. Two or more things happening at the same time. A parallel interface is one that can send a number of bits simultaneously. Contract with *serial.*

Pascal. A high-level programming language named after the seventeenth-century French mathematician Blaise Pascal.

Peripheral. A piece of equipment (usually hardware) that is external to the computer itself. The most common peripherals used with popular computers are disk drives, printers, and cassette-tape recorders.

Personal computer. A general purpose computer that is inexpensive enough to be owned by an individual with a moderate income.

Printer. An output device that produces a printed ("hard") copy of the information generated by the computer. A line printer prints a whole line of text at a time. A series printer prints one character at a time. A thermal printer makes characters by applying heat to heat-sensitive paper. An impact printer makes characters by striking a ribbon and paper like a typewriter does. A letter quality printer produces documents of better-than-typewriter quality.

Printout. A printed copy of the information produced by the computer.

Program. (1) A set of instructions that tell the computer to do something. (2) To prepare the set of instructions.

RAM. Random access memory. The main type of memory used in a small computer. The time required for the computer to find one piece of information in RAM is essentially the same no matter where the information is stored. Also known as read/write memory because data in RAM can be easily changed.

RF modulator. A device that lets a personal computer use any ordinary television set for output. Also called simply a modulator.

ROM. Read only memory. Memory where information is permanently stored and cannot be altered. This form of memory is also random access.

Save. To store a program on a disk or somewhere other than in the computer's memory.

Scroll. To move all the text on the screen (usually upwards) to make room for more text (usually on the bottom).

Serial. Things occurring one after the other. A serial interface is one that sends out one bit at a time. Contrast with *parallel.*

Simulation. A computerised representation of something in action.

Software. Programs or segments of programs. The term was coined to contrast with hardware – the actual mechanics and circuitry of a computer.

Software house. A company that writes programs or customises programs specifically to the needs of an individual customer.

SOS. Sophisticated Operating System. See *operating system..*

Special character. A character that can be displayed by the computer, but is not a letter or numeral, such as: @";%!#S%@&()–+/..

System. An organised collection of hardware and software that works together.

System software. General-purpoe programs that allow programmers to modify applications programs. BASIC may be considered part of the system software; so is the computer's operating system.

Telecommunication. Transmission of data between a computer and another computer or terminal in a different location. This can be done with phone lines, satellites, radio waves, optical fibres, or other means.

Terminal. A piece of equipment with a keyboard for input and an output device such as a CRT or printer. A terminal is used to communicate with the computer.

Thermal printer. See *printer.*

Timesharing. A process whereby the facilities of a single (usually large) computer are shared by a number of users. Timesharing requires large amounts of memory and special software to make it seem that each user has the whole computer to himself.

Track. A section of a disk or tape.

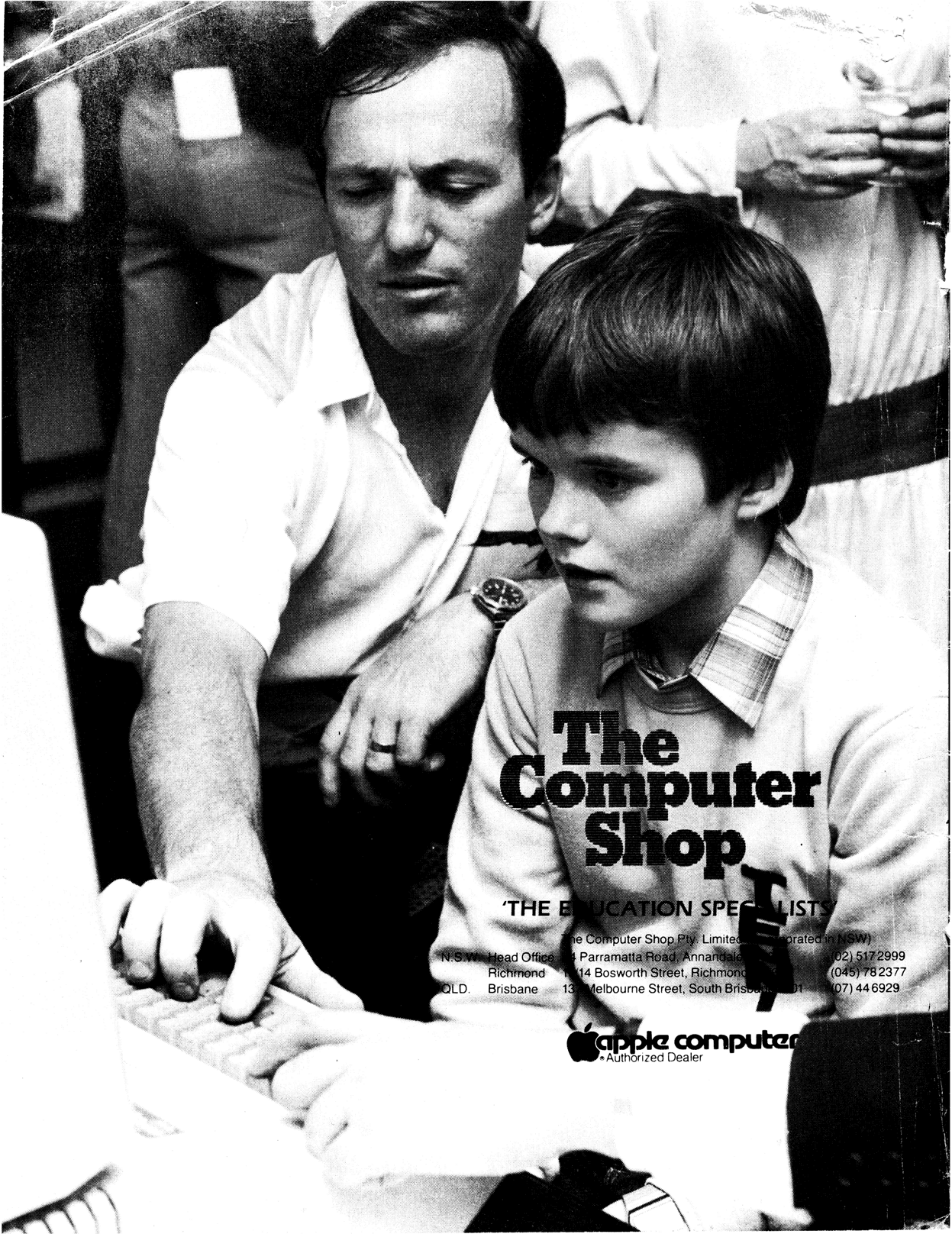
User's group. An association of people who meet to exchange information about a particular computer or group of computers.

Volatile memory. Hardware which requires continual electrical power to keep from losing information. Most RAM is volatile; ROM is not.

Window. A portion of the computer's display that is dedicated to some special purpose.

Word. A group of characters or data that occupies one location in the computer's memory.

Word processing. The entry, manipulation, editing, and storage of text using a computer.



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